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Two new Afrotropical genera of Anthomyzidae (Diptera), with descriptions of seven new species

by

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ABSTRACT

Barbarista gen. n. is established for five new species from tropical Africa, viz. *B. guttata* (type species, Kenya), *B. pauperis* (male only, Cameroon), *B. brevifrons* (Uganda), *B. brachycera* (Nigeria) and *B. davidi* (female only, Zimbabwe). The closely related genus *Amnonthomyza* gen. n. is described to include two new species from Madagascar, viz. *A. regina* (type species) and *A. deplanata* (male only). Both new genera are diagnosed and their relationships discussed. They are considered to be closely allied taxa, probably derived from the same stock as *Anthomyza* Fallén, 1810. Full descriptions of all species are given and their affinities discussed. Eggs of three *Barbarista* species are described. All species are keyed and male and female genitalia are illustrated.

INTRODUCTION

The Anthomyzidae is one of the most poorly known families of flies in the tropics of Africa. In the Afrotropical Diptera Catalogue (Sabrosky 1980), only three anthomyzid species are listed. *Amygdalops thomasseti* Lamb, 1914 is the only species recorded from mainland Africa, but is not listed from Madagascar. Although the actual Afrotropical fauna is obviously rich, nobody has attempted to treat it taxonomically up to the present. This unsatisfactory state of knowledge stimulated my interest in the Afrotropical Anthomyzidae in recent years.

Several years ago, whilst examining loaned African material for my revision of *Amygdalops* Lamb, 1914, I found a few anthomyzids of peculiar appearance with unusually porrect antennae, projecting frons, densely long-haired arista and dark, pale-spotted wings. Later, when more specimens were obtained from Dr A. Freidberg and, particularly, when Dr D. Barraclough sent me specimens from the Natal Museum's collections and asked me to describe this apparently unknown taxon of Anthomyzidae, I decided to undertake a thorough study of these flies. To my amazement, seven species were identified, two of which (both from Madagascar) proved to have essentially different genitalia compared with the remaining African species. From character analyses and detailed comparison of both groups, I concluded that the phenetic distance between them is too large for them to be congeneric. Two new genera are therefore established below, one for the African species (*Barbarista*), the other for the Madagascan species (*Amnonthomyza*). Their individual monophyly is supported by a number of clearly autapomorphic characters, justifying their description as separate genus-group taxa.

MATERIAL AND METHODS

The material examined is deposited in museums and collections as follows:

NMWC — National Museum of Wales, Cardiff (Wales, U. K.)
BMNH — The Natural History Museum, London (England, U. K.)
NMSA — Natal Museum, Pietermaritzburg (South Africa)
SMOC — Slezské zemské muzeum, Opava (Czech Republic)
TAUI — Zoological Museum, Tel Aviv University, Tel Aviv (Israel)

The presentation of label data (particularly dates of collection) have been standardised. Abdomens of the majority of type specimens were detached and genitalia dissected. After examination, all dissected parts were put in plastic tubes in glycerine and pinned below respective specimens; this fact is indicated by the abbreviation 'genit. prep.' under 'Type material'. One wing from a type specimen of each species was detached, mounted on a microslide and also pinned below the specimen.

Abbreviations of morphological terms used in the text and/or figures:

A_1	anal vein
ac	acrostichal (seta)
ag	accessory gland
ap	aedeagal apodeme
bm	basal membrane
C	costa
ce	cercus
cp	caudal process of hypandrium
cs	connecting sclerite
Cs_3 Cs_4	3rd, 4th costal sectors
dc	dorsocentral (seta)
f	filum of distiphallus
f_1 f_2 f_3	fore, mid and hind femora
gs	gonostylus
hl	internal hypandrial lobe
hu	humeral (seta)
hy	hypandrium
ip	intraperiandrial sclerite
M_{1+2}	1st medial vein
M_{3+4}	2nd medial vein
mp	micropyle
npl	notopleural (seta)
oc	ocellar (seta)
ors	orbital (seta)
pa	postalar (seta)
pg	postgonite
pp	phallophore
ppl	propleural (seta)
prg	pregonite
prs	presutural (seta)
pvt	postvertical (seta)
r	rib
R_1	1st radial vein
R_{2+3}	2nd radial vein
R_{4+5}	3rd radial vein
s	saccus of distiphallus
S1–S10	abdominal sterna
sa	supra-alar (seta)
sc	scutellar (seta)
si	sickle-shaped sclerite
stpl	sternopleural (seta)
T1–T10	abdominal terga
t_1 t_2 t_3	fore, mid and hind tibiae
ta	anterior cross-vein
ta-tp	sector on M_{1+2} between ta and tp
tp	posterior cross-vein
vi	vibrissa
vr	ventral receptacle
vte	external vertical (seta)
vti	internal vertical (seta)

Genus **Barbarista** gen. n.

Type species: *Barbarista guttata* sp. n.

Etymology: The name is a combination of L. *barba* = beard and 'arista', referring to the long and densely-haired arista. Gender feminine.

Diagnosis:

Head: Variable in form, but eye always ovoid and strongly convex. Frons narrow, sometimes projecting anteriorly; occiput concave. Face and gena more or less densely silvery microtomentose. Antenna unusually porrect, with bicolorous 3rd segment; arista densely long-haired, with conspicuously thickened, but short, basal segment. Cephalic chaetotaxy: pvt absent; vte and vti subequal and long; oc shorter than vte; 2 ors and 0–1 microseta in front of anterior ors; posterior ors is longest cephalic bristle; vi long, but thin.

Thorax: Narrow and long; scutum of mesonotum with more or less distinct, finely granulose microsculpture. Thoracic chaetotaxy: 1 hu; 2 npl (anterior longer); 1 prs (weak); 1 sa; 1 pa; 2 postsutural dc, anterior one sometimes reduced to microseta; only 2 irregular rows of ac microsetae; 2 sc, basal one reduced to microseta; 2 stpl. f_1 without ctenidial posteroventral spine, and besides usual long setae with row of short and thick anteroventral setae on apical half; t_1 and fore basitarsus or entire tarsus dark in contrast to pale remainder of fore leg. t_2 with usual ventroapical seta; ♂ f_3 with posteroventral row of short and somewhat thickened setae. Wing dark brown, with pale spotted pattern, very narrow, with strongly reduced alula and anal lobe. C with spinulae between apices of R_1 and R_{2+3}. R_{2+3} strikingly sinuate near distal end. R_{4+5} slightly sinuate, curved or almost straight apically. Discal cell long and apical sector of M_{3+4} very short, but like A_1 almost reaching wing margin.

Abdomen/male genitalia: Preabdomen not very distinctive, but characterised by dark and relatively strongly sclerotised sterna. T1 only partly separated from T2. ♂ T6 absent, other preabdominal terga large. Sterna becoming shorter and broader posteriorly. ♂ S5 simple, somewhat transverse. ♂ postabdomen with S6 and S7 strongly asymmetrical, partly fused and placed ventrolaterally to dorsolaterally; S8 more symmetrical, placed dorsally, and ventrally more or less connected with hypandrium (less firmly than in *Amnonthomyza* species). Male genitalia distinctive. Periandrium relatively short, with small anal fissure and cerci. Intraperiandrial sclerite low and simple. Gonostylus narrow and flat, with short weak setulae mainly on inner side. Hypandrium with small internal leaf-like lobes, but with long caudal process formed by 2 flat lobes. Pregonite completely fused with hypandrium, without projections. Postgonite slender, curved, with 1 external seta. Basal membrane without sclerotised armature, but its surface with elongate tubercles and striae. Connecting sclerite slender, strip-shaped. Aedeagal apodeme with bifurcate and strongly asymmetrical basal end. Aedeagus with short phallophore. Distiphallus with voluminous saccus having its membranous surface covered with small spines and/or tubercles. Filum of distiphallus unusual in having lateral slender branch besides main shaft. Filum terminates in complex apex provided with a number of teeth and processes. Ejaculatory apodeme relatively large, weakly sclerotised.

Female abdomen/genitalia: Preabdomen with sterna narrower than in ♂.

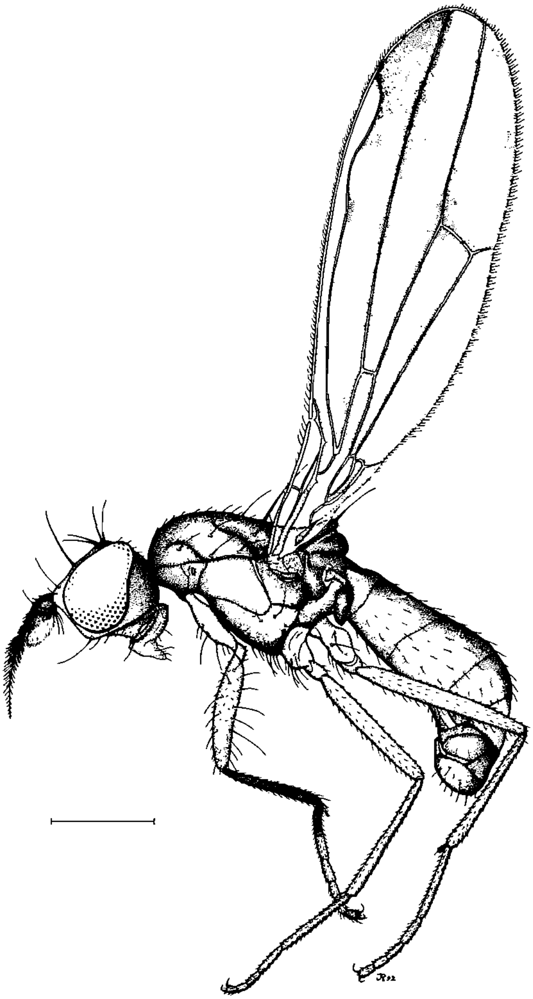


Fig. 1. *Barbarista guttata* sp. n., male paratype. Scale = 0,5 mm.

Postabdomen relatively slender, telescopically retractable. 7th segment with T7 and S7 fused into strongly sclerotised ring-shaped tergosternum. T8 simple, plate-shaped. S8 longitudinally divided into 2 sclerites, each with internally bent dorsal process. T10 simple, with pair of dorsal setae. S10 larger than T10, posteriorly tapered, anteriorly emarginate. Internal sclerotisation of genital chamber extensive, formed by 2 pairs of posterior crooked sclerites, 1 ring-shaped structure usually bent in several places and by 1 sickle-shaped anterior sclerite near insertion of spermathecal ducts. Genital chamber projects anteriorly into slender, semimembranous, ventrally bent ventral receptacle which always has pointed apex. Spermathecae (1+1) simple, oval or spherical, with short collar. Accessory gland with usual ringed duct and variously structured surface. Cerci medium-sized, slender, with rather short setae.

Discussion: *Barbarista* gen. n. seems to be most similar to *Amnonthomyza* gen. n., described below. Both genera share some peculiar external characters hitherto unknown in Anthomyzidae, which are therefore regarded as evidence of their close relationship. These characters include the unusually porrect antennae with densely haired arista, strongly reduced anal lobe and minute alula. However, *Barbarista* differs from *Amnonthomyza* as follows: in having a short basal thickened segment of the arista, f_1 having short thickened anteroventral setae, t_1 and fore basitarsus dark, R_{2+3} sinuate in distal portion, discal cell long, hypandrium with long caudal process, postgonite slender and curved, basal membrane without sclerotised armature, connecting sclerite strip-like, peculiar distiphallus with slender side branch, female genital chamber with unique sickle-shaped sclerite and with long ventral receptacle terminating in acutely pointed apex, simple spherical or oval spermathecae and slender cerci. Some of these characters are apparently autapomorphic and demonstrate the monophyly of the genus, viz. construction of the arista, the sinuate R_{2+3} (otherwise only known in the Nearctic genus *Ischnomyia* Loew, 1863), the uniquely branched filum of the distiphallus, and the sickle-shaped sclerite in the female internal genitalia. The presence of a peculiar ventral receptacle is also characteristic. Otherwise, this organ (differently shaped) has only been noted in the New World genus *Mumetopia* Melander, 1913 (small, very weakly sclerotised - Sturtevant 1926) and in one species of *Anthomyza* (voluminous, strongly sclerotised ventricle - Roháček & Freidberg 1993).

According to the general structure of the male and female postabdomen, both *Barbarista* and *Amnonthomyza* resemble *Anthomyza* Fallén, 1810, notably in the construction of the gonostylus, hypandrium, aedeagal apodeme, saccus of the distiphallus, female tergosternum T7+S7, and internal sclerites of the female genital chamber. The apomorphies discussed above suggest a relatively large phenetic gap between the genera. Despite this, the possibility of a common origin of *Anthomyza* and both genera described here is possible.

Egg morphology: Eggs were examined in three species, viz. *B. guttata* sp. n., *B. brevifrons* sp. n. and *B. davidi* sp. n. They are chiefly characterised by five elevated longitudinal ribs on the ventral side and by a fine zig-zag pattern on the dorsal side (absent or invisible in *B. brevifrons* sp. n.). Only in some *Anthomyza* species (Roháček 1986) do the eggs have similar ribs, but these are different in number. Such a zig-zag pattern of the dorsal chorion has not previously been described in Anthomyzidae.

Included species: *B. guttata* sp. n. (Kenya), *B. pauperis* sp. n. (Cameroon), *B. brevifrons* sp. n. (Uganda), *B. brachycera* sp. n. (Nigeria) and *B. davidi* sp. n. (Zimbabwe). Judging from this distribution, further unnamed species are expected from other parts of tropical Africa.

Key to species of *Barbarista*

1 Wing with large apical white spot between R_{4+5} and M_{1+2} (Figs 54, 58) 2
– Apical part of wing between R_{4+5} and M_{1+2} dark (Figs 55–57) 3

2(1) R_{2+3} strongly sinuate, wing between its apical part and C whitish; 2 white spots between R_{4+5} and M_{1+2} (Fig. 54). Frons less projecting anteriorly (Fig. 9); frontal triangle subshiny, without velvety microtomentum. Male genitalia (Figs 2–6, 11), female postabdomen (Figs 12–17) .... **guttata** sp. n.

– R_{2+3} slightly sinuate, wing between its apical part and C dark; only 1 long white spot between R_{4+5} and M_{1+2} (Fig. 58). Frons more projecting anteriorly; frontal triangle with velvety microtomentum, dull. Male unknown. Female postabdomen (Figs 48–53) .... **davidi** sp. n.

3(1) Wing (Fig. 55) darker, with 3 small whitish spots in triangular group; apical part of M_{3+4} beyond tp very short. Head longer than high, frons distinctly projecting anteriorly; 3rd antennal segment longer (as in Fig. 9). Only 1 (posterior) dc. Male genitalia (Figs 18–23). Female unknown .... **pauperis** sp. n.

– Wing (Figs 56–57) paler, with 3 almost confluent whitish spots forming transverse band; apical part of M_{3+4} longer. Head at most as long as high; frons not projecting anteriorly; 3rd antennal segment shorter, more rounded (Fig. 38). Male genitalia of different structure 4

4(2) Frontal triangle shorter (reaching anterior third of frons) and at least partly microtomentose. Only basitarsus of female fore tarsus brown, other segments yellowish white. Wing (Fig. 56) with more confluent pale spots and with distinctly paler apex. Male gonostylus very narrow (Fig. 27); lateral branch of filum short (Fig. 29). Female postabdomen (Figs 30–35) .... **brevifrons** sp. n.

– Frontal triangle longer (reaching anterior fourth of frons), without microtomentum and shiny. Entire female fore tarsus dark brown. Wing (Fig. 56) with less confluent pale spots and with dark apex. Male gonostylus (Fig. 40) broader and bent internally; lateral branch of filum long (Fig. 41). Female postabdomen (Figs 43–47) .... **brachycera** sp. n.

Barbarista guttata sp. n.

Figs 1–17, 54

Type material: KENYA: Holotype ♂: Kapenguria, Tartar Road, 24.xi.1989, A. Freidberg & Fini Kaplan (TAUI); Allotype ♀, 2 ♂ 2 ♀ paratypes, same data as holotype. Other paratypes: 1 ♂ 5 ♀, West Pokot, Chepareria, 4–5.xi.1983, I. Yarom (TAUI, SMOC); 3 ♂ 8 ♀, Mt. Elgon Lodge, 1–6.xi.1983, A. Freidberg, I. Yarom (TAUI, SMOC); 1 ♀, 25 km NE Kericho, 17.xi.1986, I. Susman (TAUI); 1 ♀, Kakamega Forest, 8–9.xi.1983, A. Freidberg (TAUI); 1 ♀, Kakamega Forest, 11.v.1991, A. Freidberg & Fini Kaplan (TAUI); 1 ♀, Kakamega For. sta., c. 5000', 18–19.vii.1974, D. Hollis (BMNH); 2 ♀, Meru, vii.1943, van Someren (BMNH). 3 ♂ 5 ♀ paratypes with genit. prep..

Etymology: The name of this species refers to its dark, pale-spotted wings.

Description:

Male: Total body length 2,38–2,66 mm. General colour dark to blackish brown, legs mainly yellow.

Head: Somewhat longer than high, blackish except for some parts mentioned below. Frons narrow, velvety black and dull except for orbits and frontal triangle. Orbit pale yellow in anterior third and silvery microtomentose up to vte. Frontal triangle very narrow and reaching middle of frons, subshiny like ocellar triangle. Anterior part of frons (Fig. 1) somewhat projecting (more prominently in ♀ - Fig. 9) and medially with a few longitudinal striae. Occiput concave, black, shiny, but with 2 silvery grey spots medially. Frontal lunule reduced. Face (praefrons) and gena pale yellow, silvery white microtomentose; postgena black. Cephalic chaetotaxy: pvt absent; vte and vti subequal and long; oc somewhat shorter than vti; 2 ors and 1 anterior microseta, posterior ors very long, anterior about half its length; vi long, but weak; peristomal and postocular setulae short and scarce. Palpus dark brown, with 1 seta. Eye large, its longest diameter about 1,4 times as long as shortest one. Gena very narrow, its height only 0,08 times as long as shortest eye diameter. Antenna unusually porrect, bicolorous (Fig. 9); 1st, 2nd and dorsal half of 3rd segment blackish brown, ventral half of 3rd segment whitish yellow. Arista blackish, with strikingly thickened basal segment, densely and rather long-haired (particularly in proximal half) and about twice as long as antenna. 3rd antennal segment distinctly projecting anteriorly.

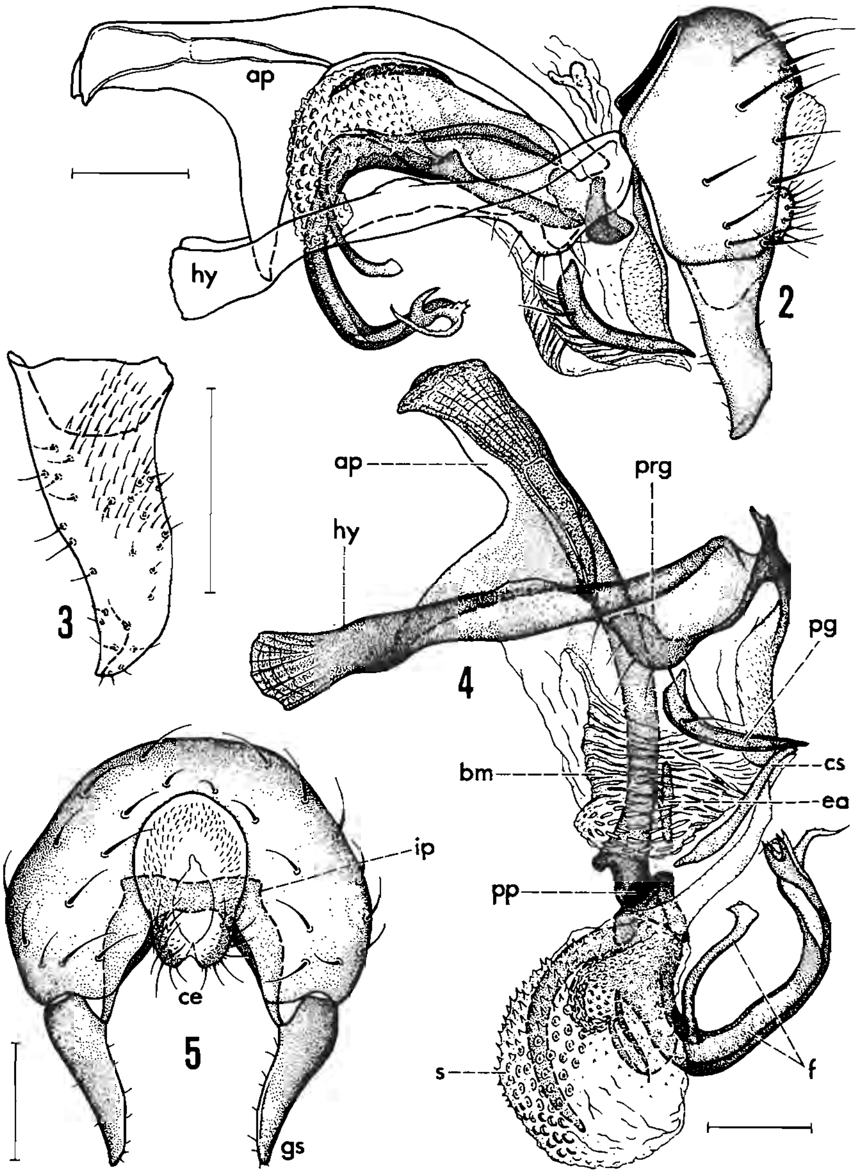
Thorax: Narrow, blackish brown, sparsely greyish brown microtomentose, subshiny. Mesonotum with distinct, finely granulose microsculpture. Chaetotaxy: 1 hu; 2 npl (anterior longer); 1 prs (short); 1 sa; 1 pa; 2 dc (both postsutural), anterior short, posterior very long (longest of thoracic setae); only 2 medial rows of sparse ac microsetae; 2 sc, basal reduced to microseta, apical long; 2 stpl, anterior less than half length of posterior. Scutellum relatively long, subtriangular.

Legs slender, mostly yellow, but fore coxa whitish yellow, f_1 somewhat brownish in anterior half; t_1 and basal half to two-thirds of fore basitarsus dark brown (Fig. 10); rest of fore tarsus whitish yellow except for brown apical segment; apical third of f_2 and f_3 ochreous orange and last segment of mid and hind tarsi brownish. f_1 with long setae in posterodorsal and posteroventral rows (Fig. 10) and with anteroventral row of short thickened setae in apical half. t_2 with relatively short ventro-apical seta. f_3 with posteroventral row of short and somewhat thickened setulae along its entire length.

Wing (Fig. 54): Narrow, dark brownish, with pale spots near margins and between R_{2+3}, R_{4+5} and M_{1+2}. R_{2+3} long and strikingly sinuate in apical part. R_{4+5} slightly curved. Discal cell long and narrow; apical sector of M_{3+4} short. Alula and anal lobe of wing greatly reduced. Measurements: length 2,52–2,90 mm, width 0,71–0,86 mm, Cs_3 : Cs_4 = 2,28–2,52, ta-tp : tp = 3,91–4,76. Haltere with dark brown knob and paler brown stem.

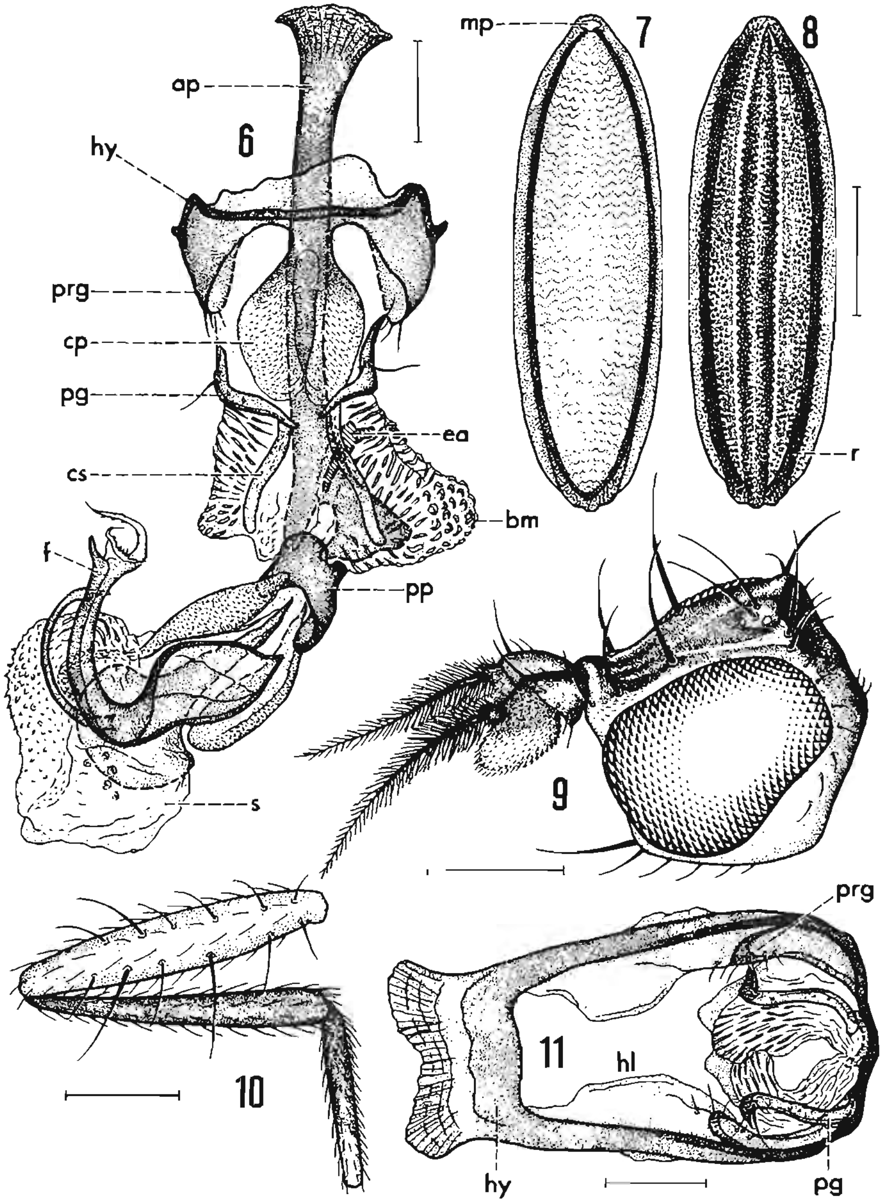
Abdomen: Blackish brown dorsally, brown ventrally. Terga with fine transverse microsculpture and sparse greyish brown microtomentum, rather shiny, particularly laterally. T6 absent, other terga large, far extended laterally. Sterna well sclerotised, narrow, becoming shorter and slightly broader caudally. S5 transverse, with shallowly emarginate posterior margin. S6–S8 asymmetrical, more or less fused together and positioned ventrolaterally on left side to dorsally.

Genitalia: Periandrium (Figs 2, 5) of medium size, moderately broad, with small anal fissure and sparse, short setae. Cercus small, short-setulose. Intraperiandrial sclerite (Fig. 5) low and simple in shape. Gonostylus (Fig. 3) flat, tapered distally, with sinuous posterior margin, acute apex, short setulae on inner side and with micropubescence on proximal half of outer side. Hypandrium (Figs 4, 11) with relatively small internal leaf-like lobes (Fig. 11) and with long caudal process (Fig. 6)



Figs 2–5. *Barbarista guttata* sp. n., male paratype. 2. Genitalia, lateral view (aedeagal apodeme and hypandrium not dotted). 3. Gonostylus, lateral view. 4. Internal genitalia, erected position, lateral view. 5. External genitalia, caudal view. Scales = 0,1 mm.

formed by 2 flat, distally membranous lobes. Pregonite (Figs 4, 11) completely fused with hypandrium, but ventrally prominent and bearing some 5 setae. Postgonite slender, bent, with pointed apex and 1 externally directed seta (Figs 4, 6). Basal membrane (Figs 4, 6) with transverse surface sculpture (striae, elongate tubercles)



Figs 6–11. *Barbarista guttata* sp. n., paratypes. 6. Male internal genitalia, erected position, caudal view. 7–8. Egg. 7. Dorsal view. 8. Ventral view. 9. Female head, dorsolateral view. 10. Male f$_1$, t$_1$ and basitarsus, posterior view. 11. Hypandrium and associated structures, ventral view. Scales: Figs 7, 8, 10 = 0,2 mm, others = 0,1 mm.

and well-developed, but narrow strip-shaped connecting sclerite (cs). Aedeagal apodeme with robust, asymmetrically bifurcate, basal end (cf. Fig. 6) and relatively stout apex provided with ventrally projecting lateral corners (Fig. 6). Aedeagus with short phallophore (Figs 4, 6, pp) and large, complex distiphallus. Distiphallus composed of voluminous saccus having its membranous surface covered with small spines and tubercles and with bifid filum (Figs 4, 6) bearing slender, bent lateral branch with dilated apex and a stout, curved main shaft with complex tip provided with a number of projections (one long) and teeth (see Figs 2, 4, 6). Ejaculatory apodeme not large, with usual digitiform projection.

Female: Similar to ♂ unless otherwise mentioned. Total body length 2,58–3,32 mm. Frons distinctly more protrudent anteriorly than ♂ (Fig. 9). Fore leg differs from ♂ in having entire tarsus dark brown. f_3 without short thickened setae. Wing measurements: length 2,85–3,58 mm, width 0,79–1,06 mm, $Cs_3 : Cs_4$ = 2,11–3,05, ta-tp : tp = 4,00–4,32. Abdomen longer than ♂. Preabdomen with narrower sterna becoming broader posteriorly, but S5 not broader than long.

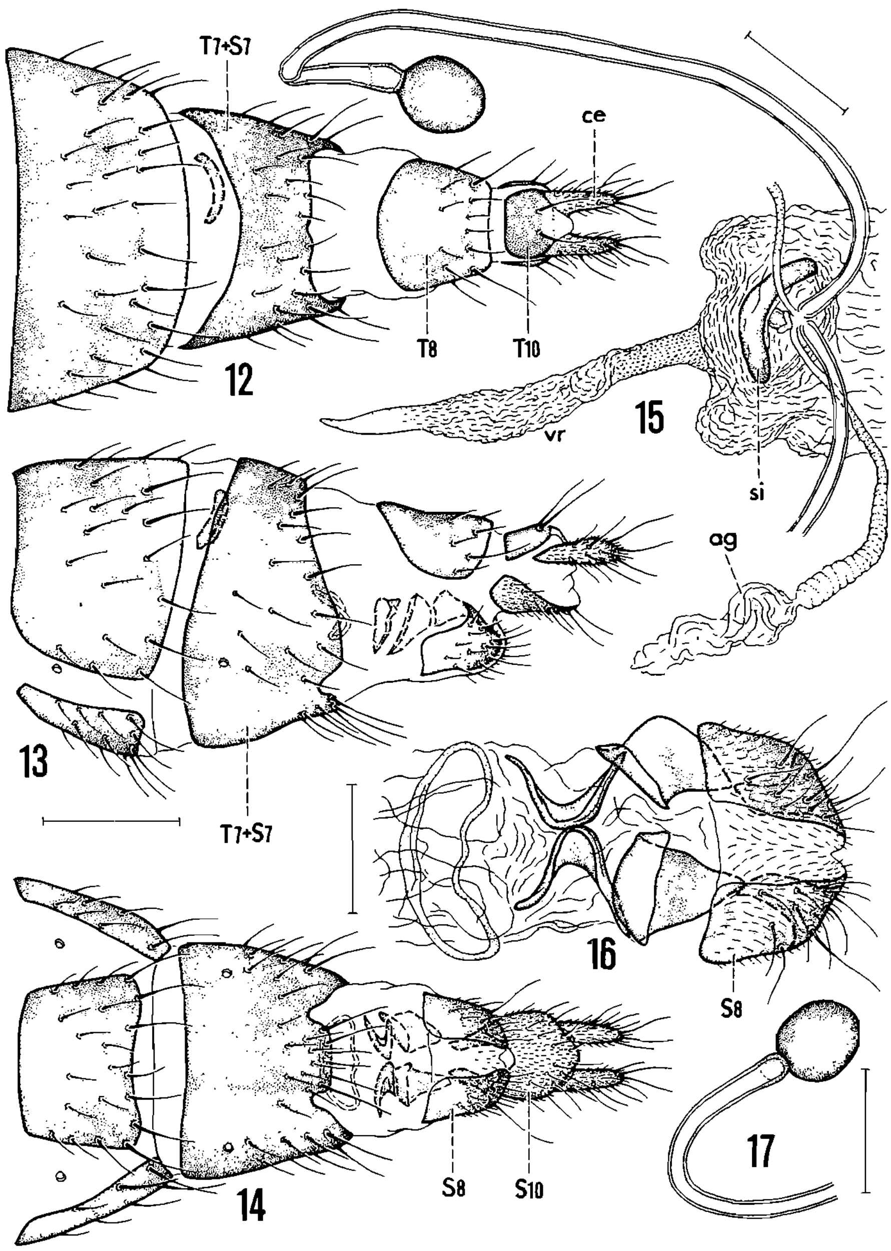
Postabdomen (Figs 12–14). T6 large, but posteriorly tapered, and with pale posterior margin. S6 small, narrow, but (in contrast to S5) transverse and widened posteriorly. Tergosternum T7+S7 dark, heavily sclerotised, dorsally shorter and ventrally bearing characteristic short posteromedial lobe with long setae. T8 not broader than long, with pale posterior margin. S8 longitudinally divided into 2 sclerites, each with internally bent dorsal process attached to internal sclerite. T10 simple, small, rounded and dark up to insertion of paired dorsal setae. S10 larger than T10, anteromedially emarginate, posteriorly tapered. Internal structures associated with ♀ genital chamber (uterus) characteristic of *Barbarista* species. 2 pairs of posterior crooked sclerites, 1 central pale pigmented and rather irregularly bent ring (Fig. 16) and 1 anterior sickle-shaped sclerite (Fig. 15, si) near junction of spermathecal ducts with common oviduct. Semimembranous, long, ventrally bent anterior projection with pointed apex: considered homologous with ventral receptacle (Fig. 15, vr). Spermathecae (Fig. 17) oval, with simple surface. Accessory gland (Fig. 15, ag) with ringed duct, without distinctive surface structures. Cercus (Fig. 12) relatively slender and long, with setae rather short.

Egg (Figs 7–8): Dirty whitish to ochreous, elongate, cylindrical, with tapered ends. Measurements: length 0,77–0,79 mm, maximum width 0,24 mm. Chorionic sculpture different on dorsal and ventral sides. Dorsal surface (Fig. 7) of chorion with very fine zig-zag pattern. Ventral side with 5 longitudinal prominent ribs (2 lateral, 2 dorsolateral, 1 dorsomedial) showing coarser reticular structure than interspaces (Fig. 8). Micropyle subterminal (Fig. 7).

Discussion: *B. guttata* resembles *B. davidi* in its head shape and body coloration, but differs from it and other species in its distinctive wing pattern and female postabdominal structures. Based on the male genitalia, *B. guttata* seems to be close to *B. pauperis* (similar hypandrium and associated structures) and *B. brevifrons* (distiphallus with similar apex of the main shaft of the filum). Apart from its head and wing pattern, *B. guttata* can also be recognised by the shape of the gonostylus, filum of the distiphallus, sternal part of the female tergosternum T7+S7, and by the female T8.

Biology: Adults were collected in May, July and November. Two gravid females (collected in November) contained 2–3 mature eggs.

Distribution: Kenya.



Figs 12–17. *Barbarista guttata* sp. n., female paratype. 12–14. Postabdomen. 12. Dorsal view. 13. Lateral view. 14. Ventral view. 15–16. Genital chamber. 15. Anterior part, dorsal view. 16. Posterior part, ventral view. 17. Spermatheca. Scales: Figs 12–14 = 0,2 mm, others = 0,1 mm.

Barbarista pauperis sp. n.

Figs 18–23, 55

Type material: Holotype ♂ CAMEROON: 20 km S. Bamenda, 1800 m, 22.xi.1987, A. Freidberg (TAUI, genit. prep.).

Etymology: L. *pauper* = poor. Refers to the reduced number of pale spots on the wing.

Description:

Male: Total body length 3,10 mm; general colour as in *B. guttata*, but somewhat darker and more shiny.

Head: Distinctly longer than high. Frons slightly wider than in *B. guttata*, with ocellar and frontal triangles and orbits glossy black, only stripes between orbits and frontal triangle and anterior third of frons (this brown) with greyish brown microtomentum, dull. Occiput concave, shiny black. Frontal triangle reaching anterior third of frons, but seemingly shorter because of its microtomentose anterior angle. Face ochreous yellow (paler medially) and anterior part of gena pale brown, both with silvery white microtomentum. Posterior half of gena and postgena dark brown and shiny. Cephalic chaetotaxy as in *B. guttata*, but vti distinctly longer than vte; 2 ors (posterior longest of cephalic bristles, anterior as long as oc), additional anterior microseta almost invisible; vi somewhat longer. Eye ovoid, convex; longest eye diameter about 1,4 times as shortest one; shortest genal height only 0,05 times as long as the latter. Antenna as in *B. guttata*, but ventral pale part of 3rd segment more yellow. Arista about 2,1 times as long as antenna, with dense and long (mainly in proximal third) hairs.

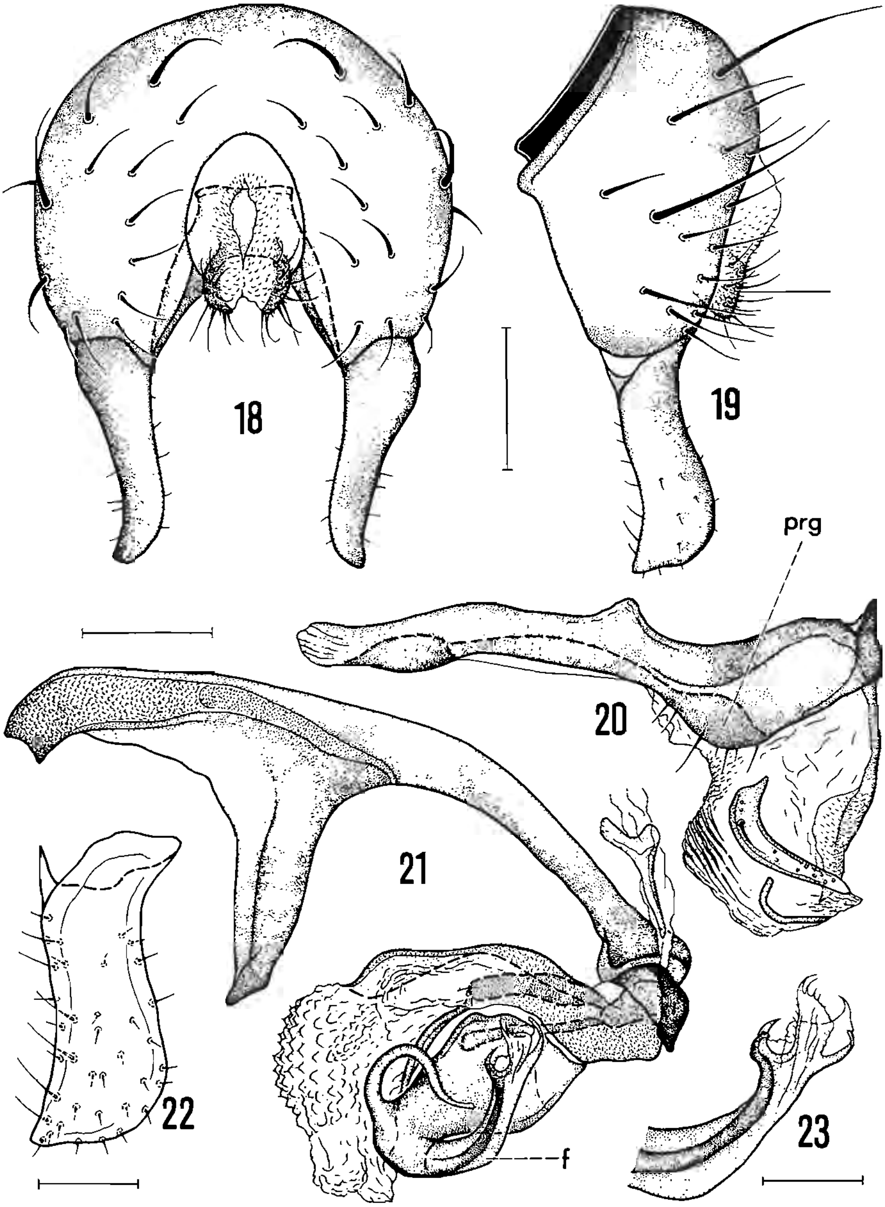
Thorax: As in *B. guttata*, but darker and with coarser granulose microsculpture on mesonotum; brownish microtomentum sparse, restricted to scutellum and posterior fourth of scutum. Thoracic setae as in *B. guttata*, but with only 1 posterior dc (anterior dc reduced to microseta).

Leg coloration and chaetotaxy similar to that of *B. guttata*, only f_1 with fewer and longer posteroventral setae and first basitarsus darkened up to its apical third.

Wing (Fig. 55): Characterised by very dark membrane and by reduced number (only 4) and size of pale spots (eg. apical spot between R_{4+5} and M_{1+2} absent). R_{2+3} strongly sinuate in apical portion; apical sector of M_{3+4} extremely shortened. Wing measusurements: length 3,14 mm, width 0,81 mm, $Cs_3 : Cs_4 = 1,96$, ta-tp : tp = 4,50. Haltere with blackish knob and brown stem.

Abdomen: Similar structure and coloration to *B. guttata*, but preabdominal sterna distinctly broader (S2–S4 much longer than broad) and S5 less transverse and less emarginate posteriorly.

Genitalia: Periandrium with smaller anal fissure and much longer setae (2 pairs very long - Fig. 19) than that of *B. guttata*. Intraperiandrial sclerite narrower (Fig. 18) and gonostylus (Fig. 22) differing in its dilated distal end and in absence of micropubescence on outer side. Hypandrium (Fig. 20) with less prominent and short-setulose pregonite. Postgonite as in *B. guttata*, but connecting sclerite reduced to very narrow strip. Aedeagal apodeme with strongly enlarged apex and with both its lateral corners curved ventrally. Saccus of distiphallus (Fig. 21) with membranous tubercles each having a microsetula on apex. Filum (Fig. 21) robust, but its side branch very slender and tapered apically; apex of main shaft of filum (Fig. 23) unlike that of *B. guttata* because of lack of a long, curved and pointed projection. Ejaculatory apodeme larger, but weakly sclerotised.



Figs 18–23. *Barbarista pauperis* sp. n., male holotype. 18–19. External genitalia. 18. Caudal view. 19. Lateral view. 20. Hypandrium and associated structures, lateral view. 21. Aedeagal complex, lateral view. 22. Gonostylus, sublateral view (widest extension). 23. Apex of filum, sublateral view (widest extension). Scales: Figs 22–23 = 0,05 mm, others = 0,1 mm.

Female: Unknown.

Discussion: *B. pauperis* appears to be closely allied to *B. guttata* (hypandrium and postgonite very similar), but it can be easily distinguished from the latter and other *Barbarista* species by its dark wings with reduced pale spots, apically broadened gonostylus, long setae on the periandrium, and the characteristic apex of the filum of the distiphallus.

Distribution: Cameroon.

Barbarista brevifrons sp. n.

Figs 24–35, 56

Type material: Holotype ♂ UGANDA: Ruwenzori Range, Mobuku Valley, 7300 ft., xii.1934–i.1935, F. W. Edwards, B.M.E. Afr.Exp., B.M. 1935-203 (BMNH). Allotype ♀ with same data as holotype, both specimens with genit. prep.

Etymology: The species is named on account of its short frons.

Description:

Male: Total body length 2,26 mm; general colour as in *B. guttata* unless otherwise mentioned.

Head: Slightly shorter than high, dark to blackish brown. Frons as in *B. brachycera*, including shiny orbits and occiput, but only anterior frontal margin paler brown and microtomentum extended on frontal triangle (at least partly) which is somewhat shorter, reaching anterior third of frons. Face and gena orange ochreous to pale brown, with relatively sparse silvery white microtomentum. Ventral margin of gena and whole postgena brown. Cephalic chaetotaxy as in *B. guttata*, but oc only about as long as anterior ors. Longest eye diameter about 1,4 times as long as shortest one. Gena low; its height 0,09 times as long as shortest eye diameter. Antenna most similar to that of *B. brachycera*, but 2nd segment paler brown only anteriorly on inner side and 3rd segment less rounded. Arista about 1,9 times as long as antenna.

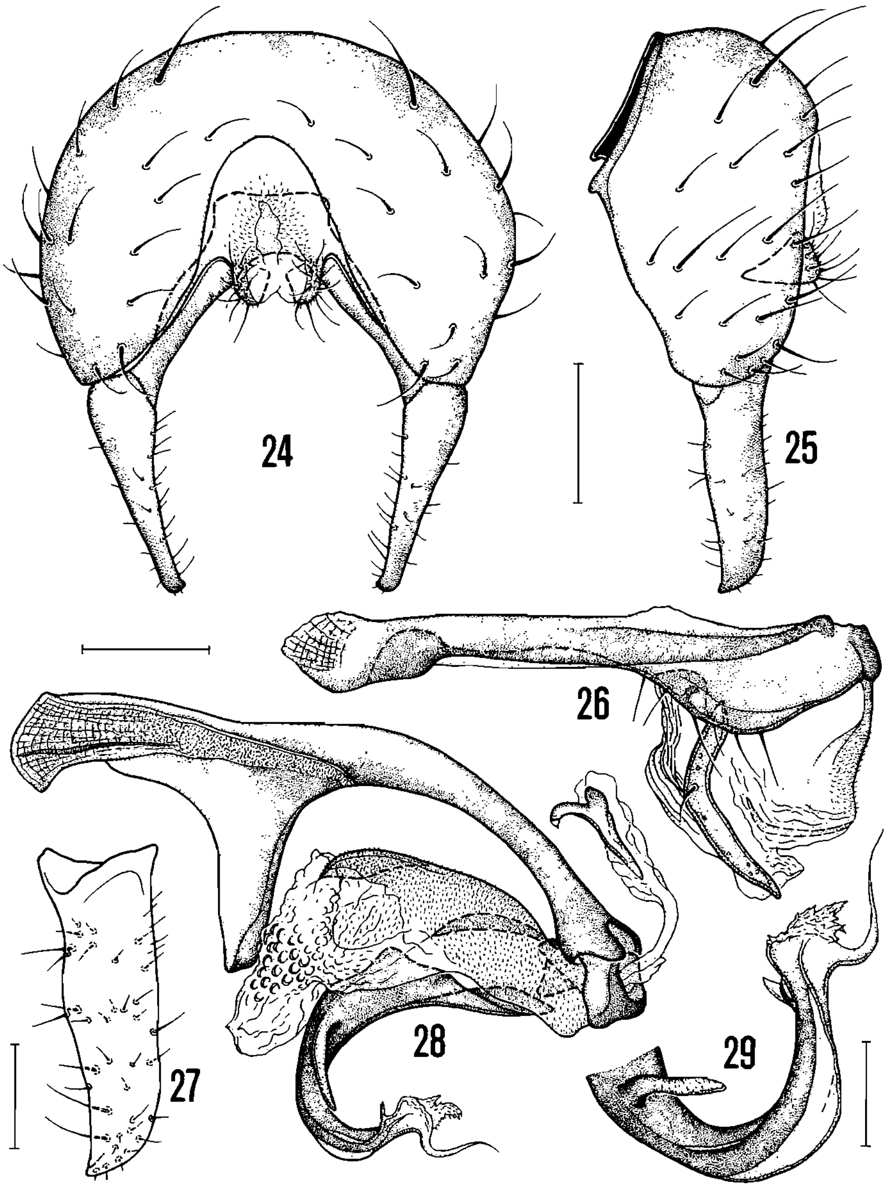
Thorax: As in *B. brachycera*, including microsculpture of scutum and chaetotaxy.

Legs yellow except for dark brown t_1 and fore basitarsus and whitish yellow remainder of fore tarsus. Chaetotaxy of f_1 as in *B. brachycera*.

Wing (Fig. 56): Pale spots still more confluent than those in *B. brachycera*. R_{2+3} strongly sinuate; R_{4+5} and apical portion of M_{1+2} almost straight. Measurements: length 2,62 mm, width 0,73 mm, $Cs_3 : Cs_4 = 1{,}92$, ta-tp : tp = 3,71. Haltere with dark brown knob and yellowish orange stem.

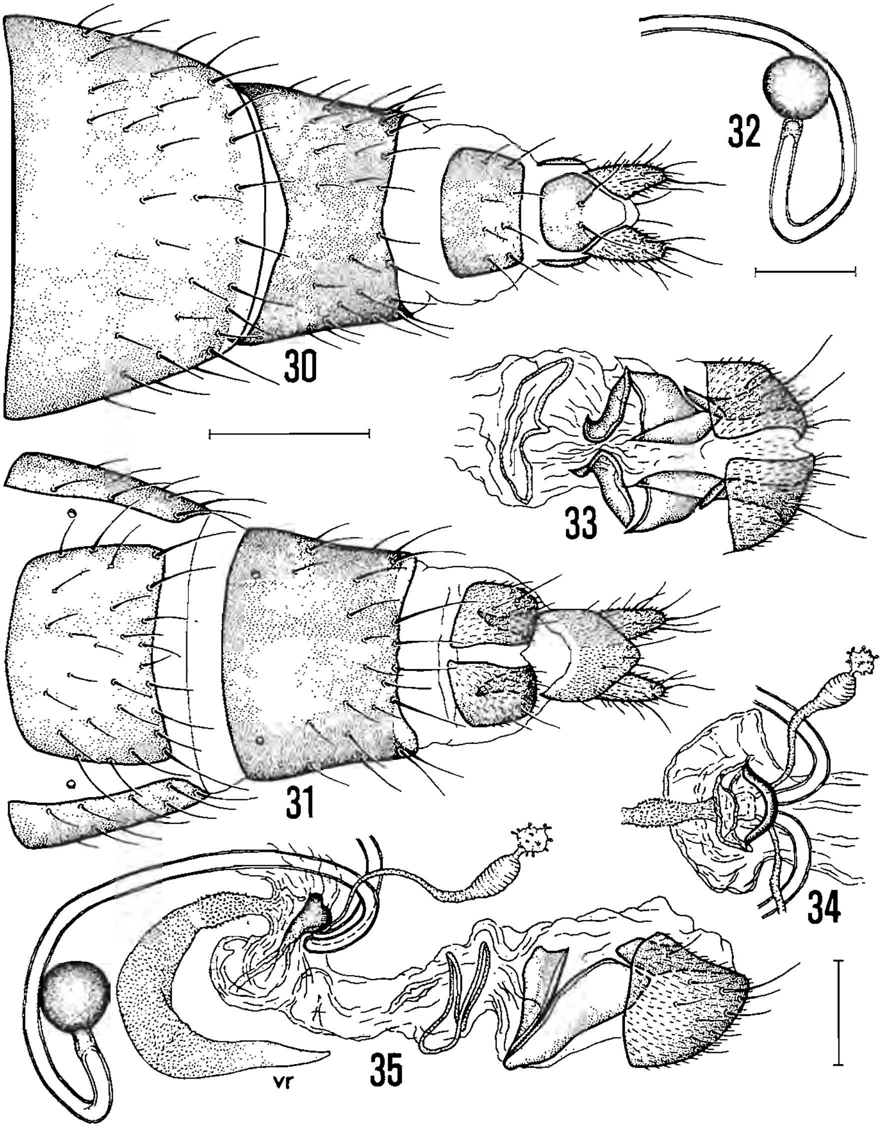
Abdomen: Dark to blackish brown as in *B. brachycera*. Sterna relatively broad as in that species, but S5 hardly emarginate posteriorly.

Genitalia: Periandrium (Figs 24–25) somewhat shorter and broader than that of *B. guttata* and with more numerous, but comparatively short setae. Intraperiandrial sclerite higher, but narrower, anal fissure and cerci smaller than in *B. guttata*. Gonostylus (Fig. 27) narrower than in all relatives, roughly parallel-sided and with acute-angled anteroventral corner; its outer side with a few setulae and almost lacking micropubescence. Hypandrium rather simple; pregonite entirely fused with it, less prominent ventrally and bearing some thin setae (Fig. 26). Caudal process of hypandrium similar to that of *B. guttata*, but shorter. Postgonite moderately curved, longer than in *B. guttata*. Basal membrane with only finely striated surface. Connecting sclerite very slender and weakly sclerotised. Aedeagal apodeme similar to that of *B. guttata*, perhaps a little more slender. Saccus of distiphallus with only



Figs 24–29. *Barbarista brevifrons* sp. n., male holotype. 24–25. External genitalia. 24. Caudal view. 25. Lateral view. 26. Hypandrium and associated structures, lateral view. 27. Gonostylus, lateral view. 28. Aedeagal complex, lateral view. 29. Apex of filum, sublateral view (widest extension). Scales: Figs 27, 29 = 0,05 mm, others = 0,1 mm.

rounded tubercles in surface membrane (Fig. 28). Filum characterised by unusually short lateral branch (see Fig. 29) and by enlarged apex of its main shaft armature, which resembles that of *B. guttata* (eg. its slender curved process ending in a whip-like tip). Ejaculatory apodeme as long as that of *B. pauperis*.



Figs 30–35. *Barbarista brevifrons* sp. n., female allotype. 30–31. Postabdomen. 30. Dorsal view. 31. Ventral view. 32. Spermatheca. 33–35. Genital chamber. 33. Posterior part, ventral view. 34. Anterior part, dorsal view (ventral receptacle partly omitted). 35. Lateral view. Scales: Figs 30–31 = 0,2 mm, others = 0,1 mm.

Female: Similar to ♂ except for differences mentioned below. Total body length 2,78 mm. Head about as long as high and arista with longer hairs. Fore tarsus as in ♂ (with dark basitarsus and yellowish white other segments), different from that of all known congeners. Wing measurements: length 3,06 mm, width 0,89 mm, $Cs_3 : Cs_4 = 2{,}23$, ta-tp : tp = 3,46. Preabdomen with narrow sterna, but S3–S5 hardly longer than broad.

Postabdomen (Figs 30–31). T6 and S6 larger than in all relatives. Tergosternum T7+S7 relatively long, forming heavily sclerotised ring and ventrally with usual posteromedial group of long setae. T8 simple, transversely trapezoidal, similar to that of *B. brachycera*, but without pale posterior margin. S8 with both sclerites closer to each other. T10 relatively large compared to T8, simple. S10 most similar to that of *B. guttata*, but more acutely angled posteriorly. Posterior internal sclerites and ring-shaped structure (Figs 33, 35) most resembling those of *B. brachycera*. Sickle-shaped anterior sclerite convex posteriorly in contrast to most relatives (Figs 34–35). Ventral receptacle strongly bent ventrally and its pointed apex not separated structurally from pre-apical part. Spermathecae subspherical, broader than long and with rather long collar (Fig. 32). Accessory gland (Fig. 35) with minute stalked surface globulae and densely ringed duct. Cercus (Fig. 30) shorter and stouter than in all congeners.

Egg: Stout; its length 0,71–0,74 mm, maximum width 0,25–0,26 mm. Dorsal sculpture of chorion simple, without zig-zag or reticulate pattern. Ventral sculpture of chorion characterised by 5 longitudinal ribs which are much lower and broader than those in eggs of *B. guttata* and/or *B. davidi*.

Discussion: *B. brevifrons* resembles *B. brachycera* mainly in its short head, non-projecting frons and short antennae. However, it differs from it and other congeners by details of wing pattern, the bicolorous female fore tarsi (as in male), the very narrow gonostylus, unusually short lateral branch of the filum of the distiphallus, the shape and structure of the ventral receptacle and sickle-shaped sclerite in the female genitalia, and by the relatively stout female cerci. Although most features indicate close affinity between *B. brevifrons* and *B. brachycera*, the structure of the apex of the filum of the distiphallus is surprisingly similar to that of *B. guttata*.

Biology: The type specimens were collected in December and January; the allotype female proved to be gravid and contained two mature eggs.

Distribution: Uganda.

Barbarista brachycera sp. n.

Figs 36–47, 57

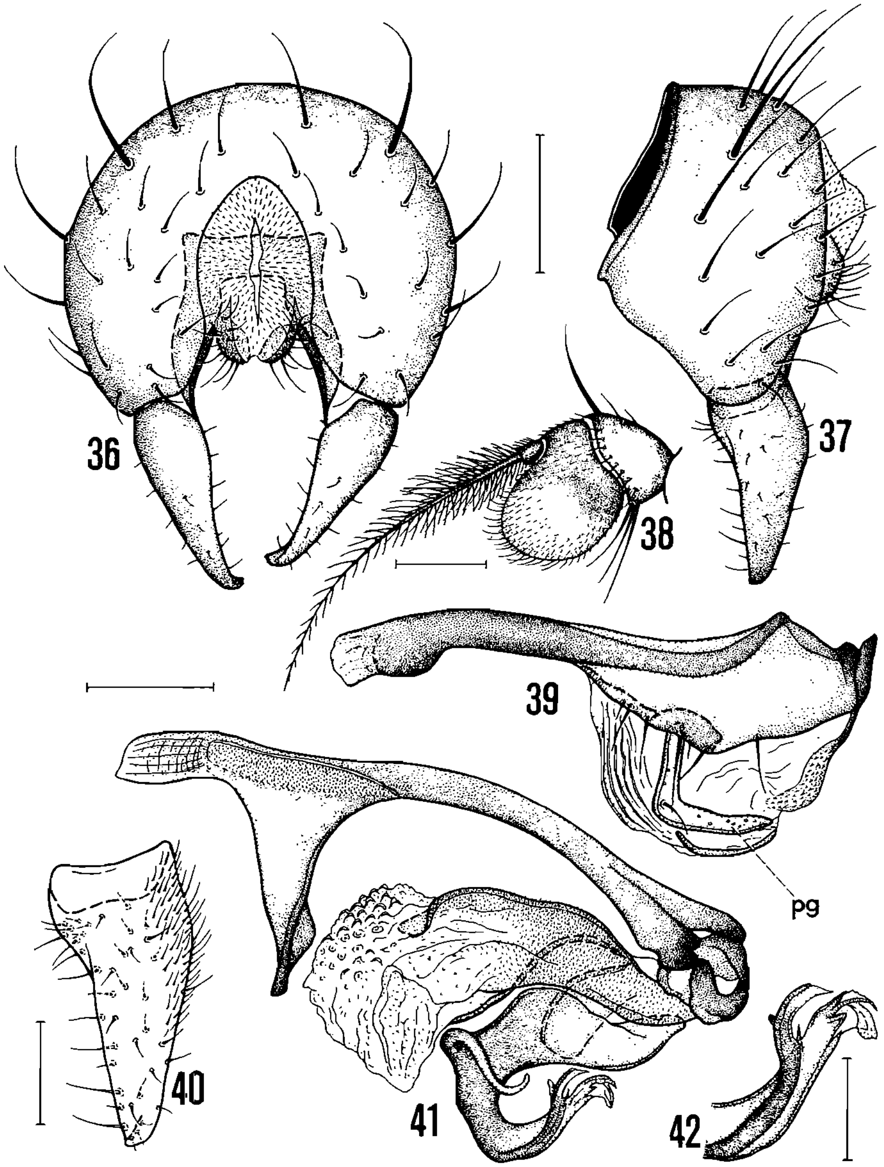
Type material: Holotype ♂ NIGERIA: Obudu CR, SE State, 13.iv.1973, T. J. Medler (NMWC). Allotype ♀ (NMWC) and paratype ♀ (SMOC) with same data as holotype. Holotype and paratype with genit. prep.

Etymology: The species is named on account of its short antennae.

Description:

Male: Total body length 2,42 mm; general colour as in *B. guttata* except for differences mentioned below.

Head: Slightly higher than long and mainly dark brown. Frons wider than in *B. guttata* and not projecting anteriorly (as in *B. brevifrons*), dark brown except for pale brown to ochreous anterior fourth. Occiput, ocellar and frontal triangles and orbits shiny, without microtomentum. Anterior third of frons and stripes between orbit and



Figs 36–42. *Barbarista brachycera* sp. n., male holotype. 36–37. External genitalia. 36. Caudal view. 37. Lateral view. 38. Antenna, lateral view. 39. Hypandrium and associated structures, lateral view. 40. Gonostylus, lateral view. 41. Aedeagal complex, lateral view. 42. Apex of filum, lateral view. Scales: Figs 40, 42 = 0,05 mm, others = 0,1 mm.

frontal triangle greyish brown microtomentose and dull. Frontal triangle relatively wide and long, reaching anterior fourth of frons. Occiput less concave than in *B. guttata*. Face narrow, and like dorsal half of gena, yellowish ochreous with some silvery white microtomentum. Ventral half of gena and postgena dark brown and shiny. Cephalic chaetotaxy as in *B. guttata*, but vte, vti and oc somewhat longer and anterior ors only one-third length of posterior one. Eye more rounded than in *B. guttata*, but still ovoid; its longest diameter about 1,5 times as long as shortest one. Genal height about 0,11 times as long as shortest eye diameter. Antenna (Fig. 38) with 3rd segment distinctly shorter than in *B. guttata* and also less strikingly bicolorous (brown and yellow to pale ochreous); 2nd antennal segment ochreous. Arista about 1,8 times as long as antenna.

Thorax: As in *B. guttata*, but stouter and scutum of mesonotum with coarser microsculpture and almost without microtomentum. Thoracic setae weaker than in *B. guttata*, particularly prs, sa, pa and anterior dc.

Legs essentially shorter and thicker than those of *B. guttata* and characterised by fore basitarsus being entirely brown and other segments of fore tarsus yellow, and by thick setae (5–7) in anteroventral row on f_1.

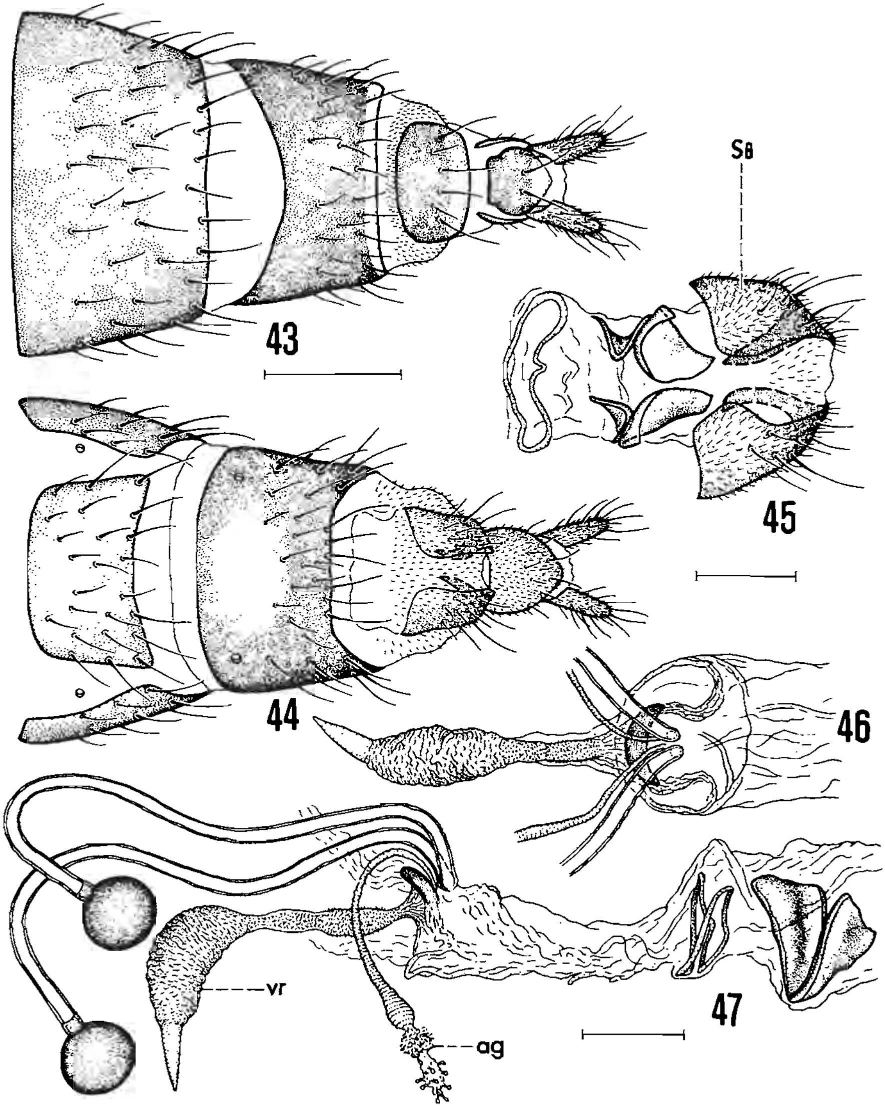
Wing (Fig. 57): Broader than in *B. guttata* and with different pattern (less contrasted pale spots, absence of apical spot between R_{4+5} and M_{1+2}) and less sinuate R_{2+3}. Measurements: length 2,70 mm, width 0,81 mm, $Cs_3 : Cs_4 = 2,00$, ta-tp: tp = 3,15. Haltere with large dark brown knob and yellow stem.

Abdomen: Dark brown, sparsely microtomentose, subshiny. Sterna broader than those of *B. guttata*. S5 transverse and with shallowly emarginate posterior margin.

Genitalia: Periandrium (Figs 36–37) longer than in *B. guttata* and with longer setae (2 pairs very long as in *B. pauperis*). Intraperiandrial sclerite somewhat narrower than that of *B. guttata*. Gonostylus (Fig. 40) more bent internally than in all relatives; it is enlarged proximally, tapered distally and its internally bent apex bears a minute blunt tooth. Outer side of gonostylus with micropubescence at posterior margin. Hypandrium relatively slender (Fig. 39), but dilated basally. Pregonite relatively large, completely fused with hypandrium and bearing rather long setae. Postgonite rectangularly bent (Fig. 39, pg). Caudal process of hypandrium shorter than in *B. guttata* and weakly spinulose; connecting sclerite very slender and basal membrane sculptured with fine striae. Aedeagal apodeme slender (Fig. 41), with simple apex lacking projecting corners. Phallophore very short. Saccus of distiphallus (Fig. 41) with only small number of tubercles in membrane. Filum stout basally and bearing very slender side branch (as in *B. pauperis*); its main shaft ending in complex apex provided with a number of teeth and short pointed processes (Fig. 42). Ejaculatory apodeme lost, not figured.

Female: Similar to ♂, but differs as follows. Total body length 2,98–3,10 mm. Head slightly longer, about as long as high and with somewhat shorter frontal triangle. Entire fore tarsus dark brown and stouter than in ♂. Wing measurements: length 3,13–3,41 mm, width 0,97–1,00 mm, $Cs_3 : Cs_4 = 1,93–2,03$, ta-tp : tp = 3,18-3,34. Preabdomen with much smaller and narrower sterna; S3–S5 distinctly longer than broad.

Postabdomen (Figs 43–44) differs from that of *B. guttata* as follows. T6 somewhat longer and S6 broader. Tergosternum T7+S7 longer dorsally, but ventrally shorter and without posteromedial short lobe; long setae at posterior margin indicate original position of S7. T8 much shorter and distinctly transverse. S8 very similar, including dorsal, internally bent lobes. T10 differing from that of *B. guttata* by its tapered anterior part. S10 less deeply emarginate anteriorly. Posterior paired internal sclerites smaller than S8; ring-shaped structure more bent in several places (see Figs 45, 47). Sickle-



Figs 43–47. *Barbarista brachycera* sp. n., female paratype. 43–44. Postabdomen. 43. Dorsal view. 44. Ventral view. 45–47. Genital chamber. 45. Posterior part, ventral view. 46. Anterior part, dorsal view. 47. Lateral view. Scales: Figs 43–44 = 0,2 mm, others = 0,1 mm.

shaped sclerite strongly sclerotised and ventral receptacle (Figs 46–47, vr) slender proximally, dilated and wrinkled distally, its pointed apex slender and simple. Spermathecae (Fig. 47) spherical, with short collar. Accessory gland (Fig. 47, ag) with 2 differently structured parts and usual ringed duct. Cercus similar to that of *B. guttata.*

Discussion: *B. brachycera* has a simple frons and short antennae, as does *B. brevifrons*; the wing pattern also most closely resembles that of the latter species. However, *B. brachycera* differs from all congeners by its relatively thick and short legs (fore tarsus particularly stout), distinctive gonostylus, rectangularly bent postgonite, simple and slender apex of the aedeagal apodeme, the structure of the apex of the filum of the distiphallus and by the anteriorly tapered female T10. Although the female postabdominal structures and formation of the saccus of the distiphallus also indicate close relationships to *B. brevifrons*, the structure and armature of the filum of the distiphallus most closely resembles that of *B. pauperis.*

Distribution: Nigeria.

Barbarista davidi sp. n.

Figs 48–53, 58

Type material: Holotype ♀ ZIMBABWE: "N. Vumba, S. Rhodesia", 17.vi.1965, D. Cookson (NMSA). The specimen is damaged, with both antennae missing, wings broken and one mounted on a microslide pinned below; genit. prep.

Etymology: This distinctive species is named in honour of Dr David Barraclough (NMSA), who generously entrusted me with its description and that of *Amnonthomyza regina.*

Description:

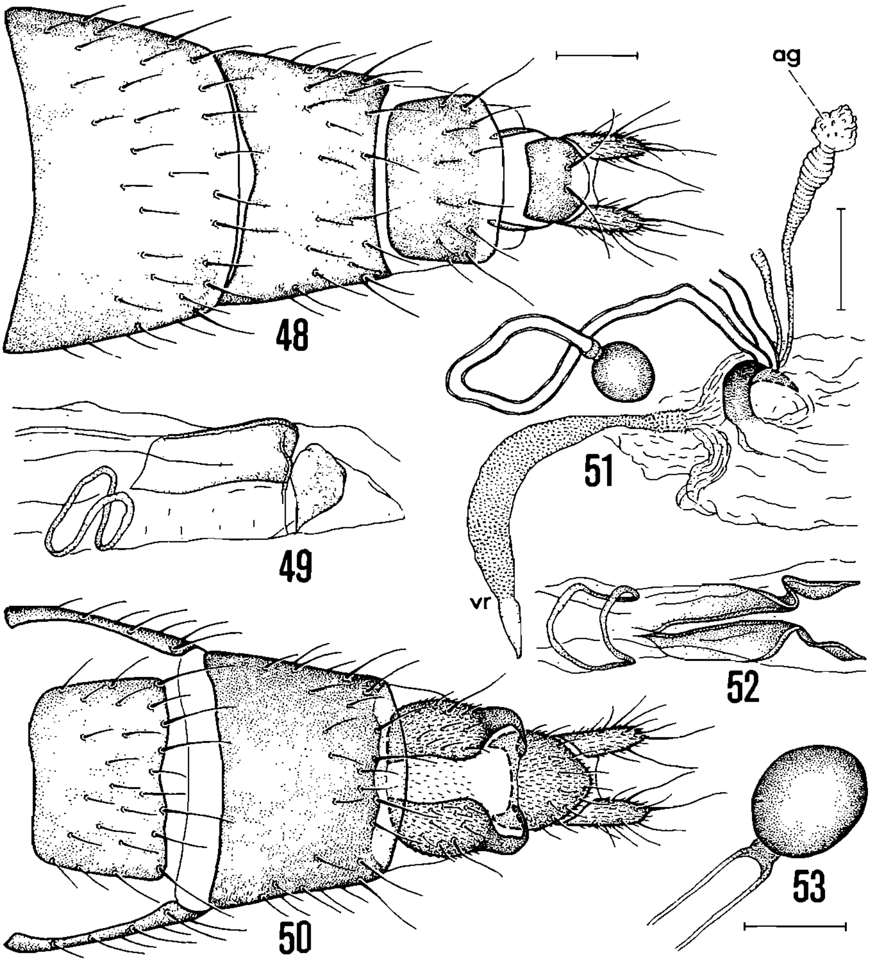
Male: Unknown.

Female: Total body length 3,45 mm; general colour as in *B. guttata* unless mentioned otherwise below.

Head: Much longer than high, mainly because of strongly projecting frons (slightly more protrudent than in *Amnonthomyza deplanata* - see Fig. 79). Frons as in *B. guttata*, but its velvety microtomentum dark brown and also covering frontal triangle. Cephalic chaetotaxy probably resembling that of *B. guttata*, but all frontal setae broken and therefore their length unknown. Occiput concave, dark brown, subshiny and with sparse greyish brown microtomentum. Anterior projecting part of frons, face (this medially darker) and gena ochreous to pale brown and covered with silvery white microtomentum, as are orbits. Postgena and palpus brown. Longest eye diameter about 1,4 times as long as shortest one. Genal height about 0,10 times as long as shortest eye diameter. Antenna could not be described, probably similar to that of *B. guttata.*

Thorax: Dark brown; mesonotum with very fine granular sculpturing, sparsely greyish brown microtomentose and subshiny. Chaetotaxy as in *B. guttata*, only apical sc somewhat longer, as long as posterior dc.

Legs also similar to those of *B. guttata*, but t_1 distinctly paler brown than dark fore tarsus.

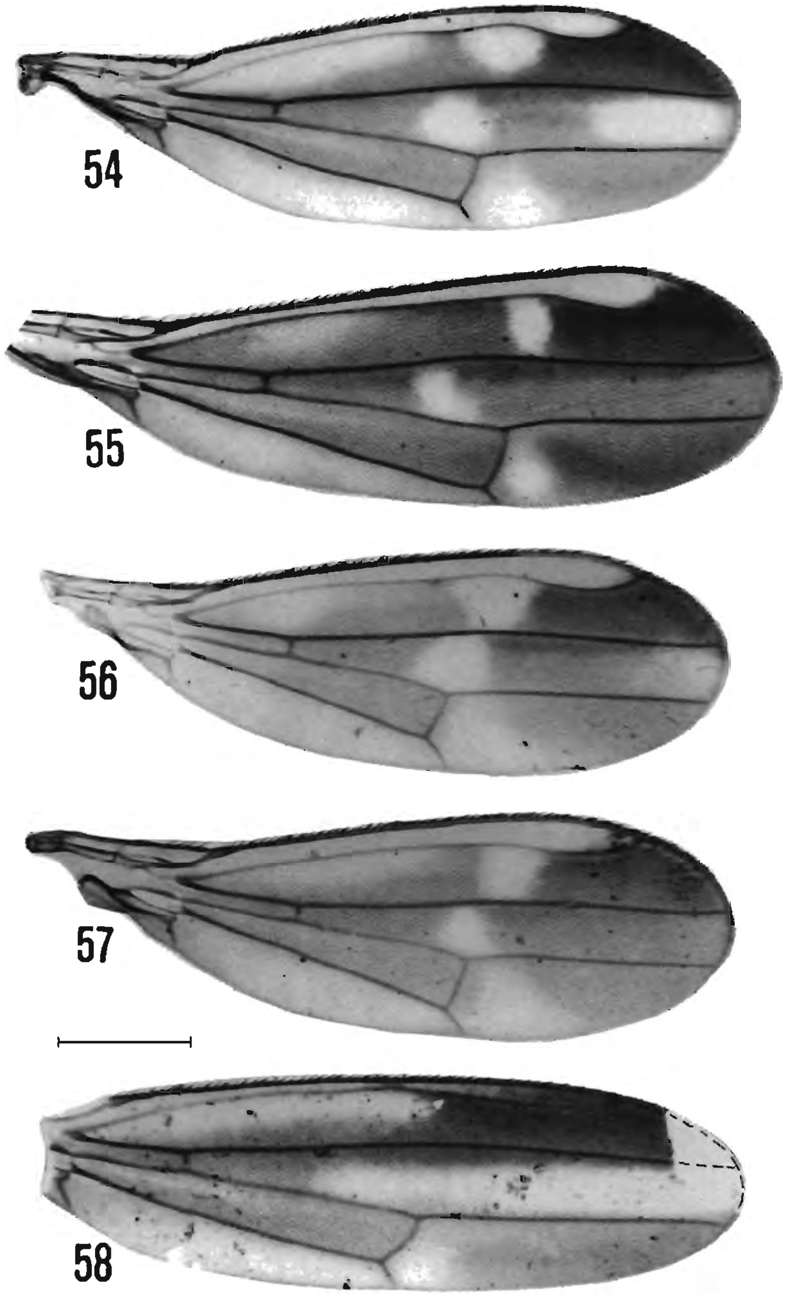


Figs 48–53. *Barbarista davidi* sp. n., female holotype. 48–50. Postabdomen. 48. Dorsal view. 49. Internal sclerites, lateral view. 50. Ventral view. 51. Posterior part of genital chamber and associated structures, lateral view. 52. Internal sclerites, ventral view. 53. Spermatheca. Scales: Fig. 53 = 0,05 mm, others = 0,1 mm.

Wing: Pattern distinctive (Fig. 58); differs from that of all relatives by having large and long white spot between R_{4+5} and M_{1+2} and in lacking pale spot at conjoinment of R_{2+3} and C. Distal portion of R_{2+3} less sinuate than in all congeners. Measurements: length 3,14 mm, width 0,77 mm, $Cs_3 : Cs_4 = 2{,}46$, ta-tp : tp = 4,22. Haltere dark brown, with large knob.

Abdomen: Dark brown; terga greyish microtomentose and subshiny, bare and glossy laterally. Preabdominal terga relatively transverse, somewhat shorter than in *B. guttata*, sterna small, narrow as in latter species.

Postabdomen (Figs 48, 50): T6 long, almost as large as that of *B. brevifrons*. S6 of medium size. Tergosternum T7+S7 simple dorsally, with pale posterior margin ventrally. T8 broad, largest of all related species, with pale pigmented posterior



Figs 54–58. Wings of *Barbarista* species. 54. *B. guttata* sp. n. (male paratype). 55. *B. pauperis* sp. n. (male holotype). 56. *B. brevifrons* sp. n. (male holotype). 57. *B. brachycera* sp. n. (male holotype). 58. *B. davidi* sp. n. (female holotype). Scale = 0,5 mm.

margin. S8 as in other species, but with extruded dorsal internal lobes in holotype because of ovipository condition of its abdomen (Fig. 50). T10 posteriorly rounded, plate-shaped. S10 with wide anterior emargination. Posterior internal sclerites and ring-shaped structure (Figs 49, 52) differing from those of congeners (particularly in that the more anterior sclerite is unusually long). Ventral receptacle (Fig. 51) slender, bent, with structurally distinct and pointed apex; sickle-shaped sclerite relatively large, convex anteriorly. Spermathecae oval, with short, but distinct collars (Fig. 53). Accessory gland with small tubercles on surface (Fig. 51, ag). Cercus of medium size, but its setae longer than in all relatives (Fig. 48).

Egg: Relatively stouter than that of *B. guttata*; length 0,69–0,72 mm, maximum width 0,24–0,25 mm. Chorionic sculpture very similar to that of *B. guttata*, including 5 prominent longitudinal ribs on ventral side, but dorsal transverse zig-zag lines interconnected by 4 longitudinal lines to form a reticule with 3 rows of transverse zig-zag sided meshes.

Discussion: Although *B. davidi* is known only from a single, somewhat damaged specimen, I did not hesitate to describe it as new as it is a highly distinctive species. It can be easily recognised by its strongly projecting frons, characteristic wing pattern, unusually large female T8, and long internal sclerites in the female genital chamber. *B. davidi* is probably closest to *B. guttata*; this is confirmed by the similar eggs in both species.

Biology: The holotype female was probably collected in June during oviposition; it had 6 semi-mature to mature eggs in its abdomen, one of which was partly protruding from the genital opening.

Distribution: Zimbabwe.

Genus **Amnonthomyza** gen. n.

Type species: *Amnonthomyza regina* sp. n.

Etymology: The name is a combination of 'Amnon' and '(An)thomyza', gender feminine. It is dedicated to Dr Amnon Freidberg (TAUI), an outstanding specialist in Tephritidae and other acalyptrate Diptera.

Diagnosis:

Head: Much longer than high. Frons narrow, with impressed medial part, and strongly projecting anteriorly. Occiput concave; only gena with silvery white microtomentum. Antenna porrect, with bicolorous 3rd segment; arista with dense and long hairs, and with thickened, long basal segment. Cephalic chaetotaxy: pvt minute and convergent or absent; vti shorter or as long as vte; oc shorter than vte, weak; 3 ors (posterior longest), but foremost sometimes small; 1–2 pairs of medial microsetae in anterior fourth of frons; vi relatively short and weak.

Thorax: Narrow and long; mesonotum with fine granulose microsculpture. Thoracic setae relatively short. Chaetotaxy: 1 hu, 2 npl (anterior longer), 0–1 prs (very weak), 1 sa, 1 pa (both short), only 1 dc (small to strong) in prescutellar position, 2–4 rows of minute ac microsetae, 2 sc (lateral pair situated more medially on disc of scutellum), 2 stpl. f_1 without ctenidial spine and with unusually short setae in both posteroventral and posterodorsal rows. t_2 with short ventro-apical seta. Short thickened setae on ♂ f_3 absent or in very short subapical row. Wing narrow, with brownish membrane darker and/or paler spotted. C with spinulae between apices of R_1 and R_{2+3}. R_{2+3} long, curved along C, apically straight or slightly bent towards C. Distal sectors of R_{4+5} and M_{1+2} distinctly sinuate. Discal cell of medium length and rather wide. Distal sector of M_{3+4} short, not reaching wing margin in contrast to A_1. Alula and anal lobe reduced and hence basal fourth of wing very narrowed.

Abdomen / male genitalia: Preabdomen with large terga and small paler sterna. T1 and T2 fused and T6 absent. Postabdomen with S6–S8 strongly asymmetrical, partly fused and heavily sclerotised. S8 situated dorsally and its lateral projections fused with hypandrium ventrally. Genitalia characterised by broad, shortly setose periandrium, small cerci and distinctive intraperiandrial sclerite with narrowed dorsal part. Gonostylus narrow to very narrow, with short setae mainly on its inner side. Hypandrium robust, with small internal leaf-like lobes and short bilobed caudal process. Pregonite simple, completely fused with hypandrium. Postgonite robust, dilated ventrally. Basal membrane armed with sclerotised grains, striae and/or spines. Connecting sclerite plate-shaped. Aedeagal apodeme very stout; its fulcrum fused to hypandrium ventrally and its forked asymmetrical base strongly dilated. Aedeagus with short phallophore and large distiphallus. Saccus of distiphallus voluminous and with pale tubercles or thorns on membrane. Filum of distiphallus formed by single sclerite with 1 ventral tubercle-like or tooth-like process and variously structured apex. Ejaculatory apodeme rather small and weakly sclerotised.

Female abdomen / genitalia: Preabdomen similar to that of ♂. Postabdomen not very slender, but telescopically retractable. Tergosternum T7+S7 well-developed, but S7 still visible. T8 broad and heavily sclerotised. S8 longitudinally divided into 2 sclerites, each with internally bent short dorsal process. T10 simple, with pair of dorsal setae. S10 simple, broader than T10. Internal sclerotisation of ♀ genital chamber formed by 2 pairs of posterior crooked sclerites and 1 anterior ring-shaped structure. Ventral receptacle not present. Spermathecae (1+1) small, elongate and with long, doubled collar. Accessory gland with minute stalked surface globulae and with dilated terminal part of ringed duct. Cerci short, with short setae.

Discussion: *Amnonthomyza* seems to be most closely related to *Barbarista*; their shared characters and differences are discussed under that genus. Only those apomorphic features demonstrating the monophyly of *Amnonthomyza* are here mentioned: the shortened cephalic and thoracic setae; only 1 dc; characteristically sinuate R_{4+5} and M_{1+2}; the intraperiandrial sclerite with a narrowed dorsal part; the very robust postgonite; the plate-shaped connecting sclerite; the small elongate spermathecae with elongate collar and the shortened female cerci.

It should be stressed that *Amnonthomyza* species display more similarities to the genus *Anthomyza* than do *Barbarista* species, particularly in the structure of the male and female genitalia. Thus the hypandrium and pregonites, armature of the basal membrane and sclerotisation of the female genital chamber of *Amnonthomyza* are reminiscent of those of some *Anthomyza* species. If *Anthomyza* is considered to be the out-group of *Amnonthomyza* + *Barbarista* then *Amnonthomyza* appears to be the more primitive of the pair because of the more plesiomorphic male and female genitalia, chaetotaxy and wing venation.

Included species: Two Madagascan species are here included in *Amnonthomyza*, viz. *A. regina* sp. n. and *A. deplanata* sp. n.

Key to species of *Amnonthomyza*

1 Large species (4,0–4,4 mm) with orange brown body. Wing without whitish spots (Fig. 82). Thoracic setae longer, dc strong. Preabdominal terga with paler orange-brown spots. Male genitalia (Figs 59–66), female postabdomen (Figs 68–73) .... **regina** sp. n.

– Smaller species (2,7 mm) with brownish black body. Wing darker, with 3 whitish spots and more sinuate R_{4+5} (Fig. 83). Thoracic setae reduced, dc very small. Preabdominal terga without spots, blackish brown. Male genitalia (Figs 74–78, 80, 81). Female unknown .... **deplanata** sp. n.

Amnonthomyza regina sp. n.

Figs 59–73, 82

Type material: Holotype ♂ MADAGASCAR-Nord: Montagne d'Ambre, 1000 m, dct Diégo-Suarez, 23.xi–4.xii.1957, B. Stuckenberg (NMSA). Allotype ♀ (NMSA) and 6 ♀ paratypes (NMSA, SMOC) with same data as holotype. Holotype and 2 ♀ paratypes with genit. prep.

Etymology: L. *regina* = queen; refers to the large size and striking appearance of this species.

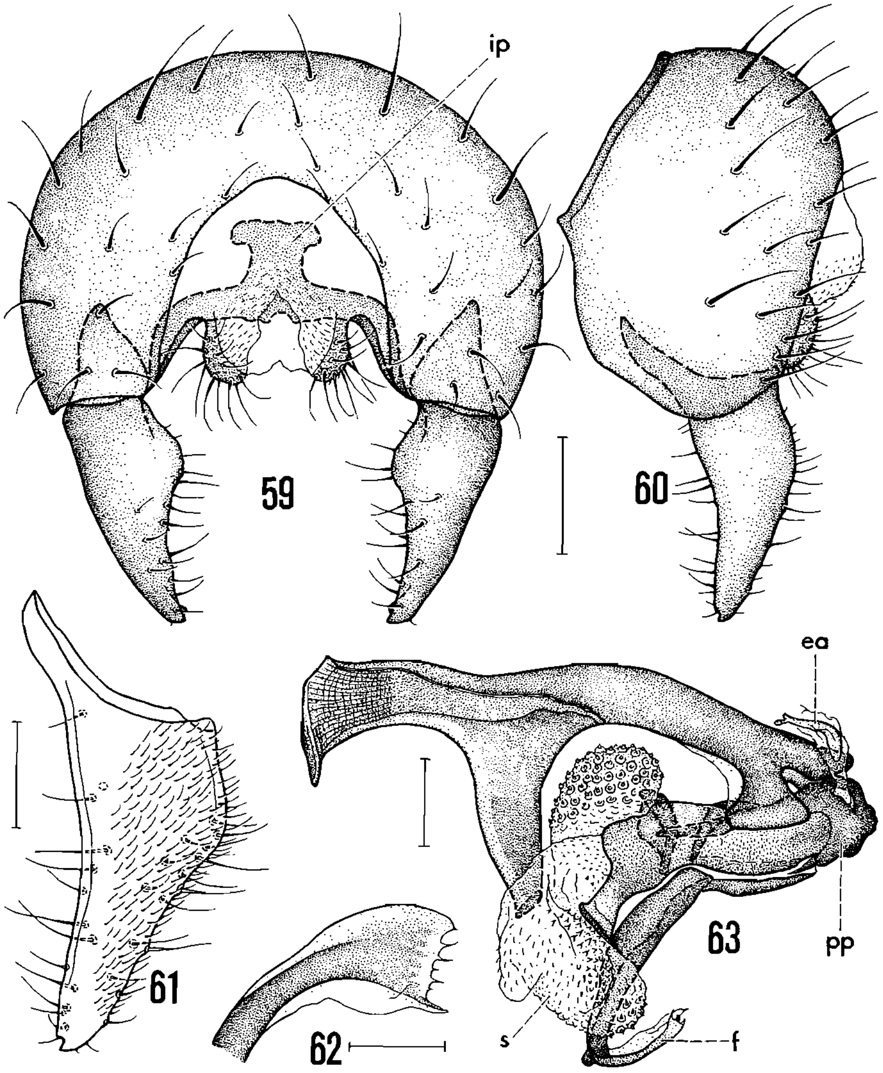
Description:

Male: Total body length 4,09 mm; general colour orange brown to brown, darker on head, pleurae and abdomen.

Head: Much longer than high, with strongly projecting frons anteriorly. Frons relatively narrow, shallowly impressed medially; its colour brown posteriorly and orange on anterior protruding part. Orbits bare and shiny up to vte; remainder of frons with greyish microtomentum and dull, but frontal triangle (very narrow and reaching anterior third of frons) and ocellar triangle subshiny as they are only sparsely microtomentose. Occiput brown, with sparse greyish microtomentum, subshiny and with 2 large silvery white microtomentose spots in its concavity behind ocellar triangle. Face yellow to ochreous orange and relatively dull; gena yellow and densely silvery white microtomentose; postgena brown and shiny. Cephalic chaetotaxy: pvt minute, but discernible, convergent; vte and vti subequal; oc shorter and weaker than vte; 3 distinct ors, posterior one longest, middle one also long yet weaker and situated together with smallest anterior ors on projecting part of frons; 3 pairs of additional microsetae on frons, 1 medial near middle ors, 1 in front of foremost ors and 1 below insertion of antenna; vi very weak and rather short; peristomal and postocular setulae short and weak except for 1 longer seta on postgena. Palpus orange with darkened tip and 1 longer subapical setula. Eye large and convex, long-oval; its longest diameter about 1,5 times as long as shortest one. Gena narrow; its height only 0,06 times as long as shortest eye diameter. Antenna

(Fig. 67) porrect; 1st segment minute and hidden, 2nd one orange-brown; 3rd antennal segment large, apically tapered, bicolored, dorsal part brownish, ventral part whitish yellow. Arista with thickened and long basal segment, very densely haired, particularly in basal half; length only 1,4 times as long as antenna.

Thorax: Narrow, reddish to orange brown, mesonotum with fine microsculpture and sparse greyish brown microtomentum, slightly shiny. Pleura darker than mesonotum,



Figs 59–63. *Amnonthomyza regina* sp. n., male holotype. 59–60. External genitalia. 59. Lateral view. 60. Caudal view. 61. Gonostylus, lateral view. 62. Apex of filum, posteroventral view (widest extension). 63. Aedeagal complex, lateral view. Scales: Figs 61–62 = 0,05 mm, others = 0,1 mm.

with sparse grey microtomentum except for mesopleuron which is almost entirely bare and shiny. Scutum of mesonotum darker reddish brown medially, orange ochreous laterally. Thoracic chaetotaxy: 1 hu (weak), 1 prs (very weak), 2 npl (strong, anterior longer), 1 pa, 1 sa (both subequal in length to hu), 1 posterior dc (strong), 2 sc (apical as long as dc, lateral short and shifted on disc of scutellum), 2 stpl (anterior shorter and much weaker). Scutellum subtriangular, relatively broad.

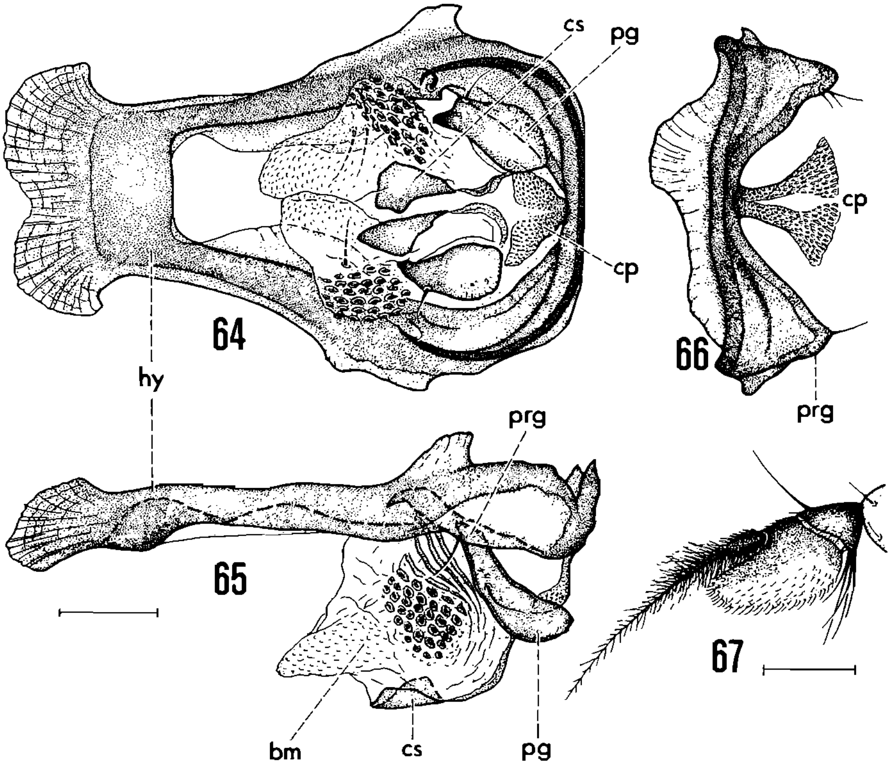
Legs yellow to whitish yellow, or femora and knees darker ochreous, slender and long, with reduced setosity. f_1 without ctenidial spine and with weak and relatively short setae. t_2 with short ventro-apical seta. Hind basitarsus very long and slender, much longer than remainder of hind tarsus.

Wing (Fig. 82): Long and rather narrow, with brownish membrane and veins, darkest along R_{2+3} in apical half. R_{2+3} very long and curved along C, only very slightly upturned towards C apically. Distal sectors of R_{4+5} and M_{1+2} distinctly sinuate. Discal cell of medium size, with ta situated in middle and tp bent or sinuous. Apical part of M_{3+4} short, not reaching wing margin. A_1 terminates in margin of wing because of reduced anal lobe. Alula very narrow, reduced. Measurements: length 3,60 mm, width 1,00 mm, $Cs_3 : Cs_4$ = 0,45, ta-tp : tp = 2,52. Haltere orange brown to ochreous, knob usually darker than stem.

Abdomen: Brown, T3–T5 with pale brown to orange anteromedial spots; postabdomen dark brown. T1 and T2 fused; all preabdominal terga with greyish brown microtomentum; sterna and tip of abdomen sparsely microtomentose and shiny. Preabdominal sterna pale pigmented and narrow, longer than broad; S5 broadened posteriorly, but not broader than long. S6–S8 heavily sclerotised and asymmetrical. S8 positioned dorsally with its ventrolateral projections firmly fused with hypandrium (lateral processes of hypandrium in Figs 64–65 = remainder of S8, broken off).

Genitalia: Periandrium (Figs 59–60) of medium length, but very broad, relatively short-setose. Anal fissure much wider than that of *A. deplanata*. Cerci small; intraperiandrial sclerite (Fig. 59) with distinctive narrowed dorsal part. Gonostylus (Fig. 61) broader proximally, tapered distally; it has an unusually prolonged anterodorsal corner, apex with 1 small subapical tooth and rich micropubescence covering most of its outer side. Hypandrium (Figs 64–65) robust, with small and weakly sclerotised internal leaf-like lobes and with short, bilobed caudal process (Fig. 66). Pregonite completely fused with hypandrium, hardly prominent ventrally and with 1–2 setae. Basal membrane provided with strongly sclerotised striae and thorn-like grains; connecting sclerite broad, plate-shaped. Postgonite unusually stout and dark, with dilated distal part (see Fig. 64) and with 1 usually longer seta. Aedeagal apodeme (Fig. 63) very stout, its ventral fulcrum firmly connected to hypandrium and its forked asymmetrical base extremely enlarged. Phallophore not clearly separated from distiphallus, short. Saccus of distiphallus with well-sclerotised proximal part, and voluminous membranous part bearing small spines and tubercles on surface. Filum (Fig. 63) relatively simple, strongly sclerotised, with short stump-like process ventrally, apex flattened and provided with weak teeth (Fig. 62). Ejaculatory apodeme small, with minute pre-apical process (Fig. 63).

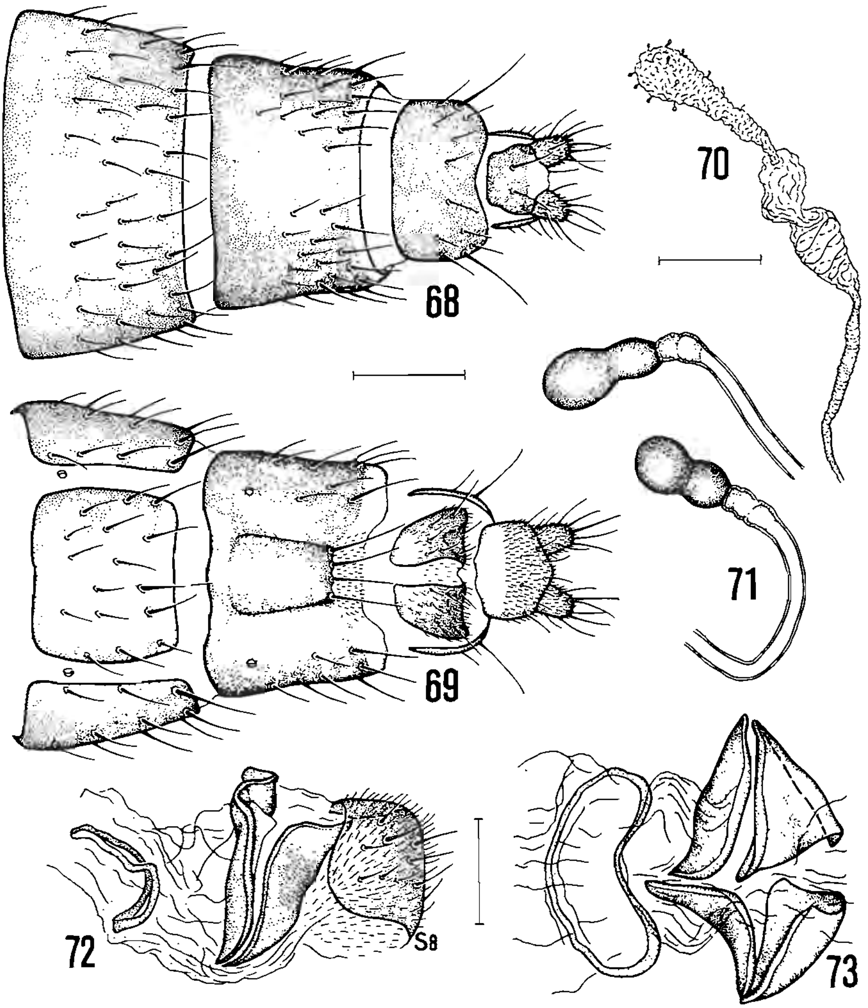
Female: Similar to ♂ unless otherwise mentioned. Total body length 4,12–4,41 mm.



Figs 64–67. *Amnonthomyza regina* sp. n., male holotype. 64–66. Hypandrium and associated structures. 64. Ventral view. 65. Lateral view. 66. Caudal view. 67. Antenna, lateral view. Scales: Fig. 67 = 0,2 mm, others = 0,1 mm.

Wing measurements: length 3,81–4,13 mm, width 1,09–1,21 mm, Cs_3 : Cs_4 = 0,48–0,55, ta-tp : tp = 2,46–2,60. Abdomen with T3–T5 often largely orange-brown medially; sterna pale brownish; S2–S5 longer than broad, but not narrower than in ♂.

Postabdomen (Figs 68–69). T6 paler than tergosternum T7+S7. S6 somewhat broader than long, with pale posterior margin. Tergosternum T7+S7 simple and densely setose dorsally (Fig. 68), ventrally with clearly demarcated original S7 bearing 4 long setae at posterior margin. T8 dark, plate-shaped and broad, with shallow posteromedial emargination and 1 pair of long setae in addition to shorter ones. S8 longitudinally divided into 2 relatively short sclerites, each with short dorsal projection bent internally. T10 small, tapered anteriorly and dark up to base of cerci, with usual 1 pair of setae. S10 simple, broader than long, with micropubescnce in posterior two-thirds. Internal genitalia (Figs 72–73) reinforced by 2 pairs of posterior crooked sclerites and 1 ring-shaped structure bent in several places. Spermathecae distinctive, small, narrowly pyriform to constricted in middle (Fig. 71) and with long doubled collar. Accessory gland (Fig. 70) with minute stalked globulae on surface; its duct enlarged subterminally and densely ringed in narrow part. Cercus (Fig. 68) short, with a number of rather short setae.



Figs 68–73. *Amnonthomyza regina* sp. n., female paratype. 68–69. Postabdomen. 68. Dorsal view. 69. Ventral view. 70. Accessory gland. 71. Spermathecae. 72–73. Posterior part of genital chamber. 72. Lateral view. 73. Ventral view (S8 omitted). Scales: Figs 68–69 = 0,2 mm, Figs 70–71 = 0,05 mm, others = 0,1 mm.

Discussion: *A. regina* is the largest known species of Anthomyzidae. Besides the size, it differs from *A. deplanata* by its orange-brown colour, long dc, wider wing without pale spots, much broader gonostylus and by many other differences in the male genitalia (intraperiandrial sclerite, postgonite, caudal process of hypandrium, filum of distiphallus, ejaculatory apodeme etc.).

Biology: Dr B. R. Stuckenberg (*pers. comm.*) provided the following information: 'The type series was collected from densely shaded shrubbery in very damp forest, situated within an inactive volcanic crater at the summit of the D'Ambre massif.'

Distribution: Madagascar.

Amnonthomyza deplanata sp. n.

Figs 74–81, 83

Type material: Holotype ♂ MADAGASCAR N.: Ambohitra, Joffreville, 800 m, 9-12.iv.1991, A. Freidberg & Fini Kaplan (TAUI); genit. prep.

Etymology: The name refers to the flattened head of this species.

Description:

Male: Total body length 2,66 mm; general colour brownish black, subshiny to dull.

Head: Strongly dorsoventrally flattened, much longer than high (Fig. 79). Frons strongly projecting anteriorly, with impressed medial part formed by very narrow and long frontal triangle reaching its anterior margin. Both frontal and ocellar triangles velvety black microtomentose and dull; orbits fuscous anteriorly, dark brown posteriorly and glossy up to posterior eye margin. Occiput concave, with silvery grey microtomentum, particularly dense on 2 spots behind ocellar triangle. Face narrow, yellowish ochreous and dull; gena pale yellow, with silvery white microtomentum; postgena pale brown, subshiny. Cephalic chaetotaxy similar to *A. regina*, but pvt absent; vti much shorter than vte (about as long as oc); foremost ors weak, not longer than anterior medial microsetae (in 2 pairs); vi unusually short and weak, see Fig. 79. Eye elongate, its longest diameter about 1,6 times as long as shortest one. Gena narrow, its height 0,08 times as long as shortest eye diameter. Palpus pale brown. Antenna with 1st and 2nd segments blackish brown; dorsal part of 3rd segment and basal elongate segment of arista also blackish; ventral part of 3rd antennal segment yellow. Arista relatively short, 1,7 times as long as antenna, with dense, but not very long hairs basally (see Fig. 79).

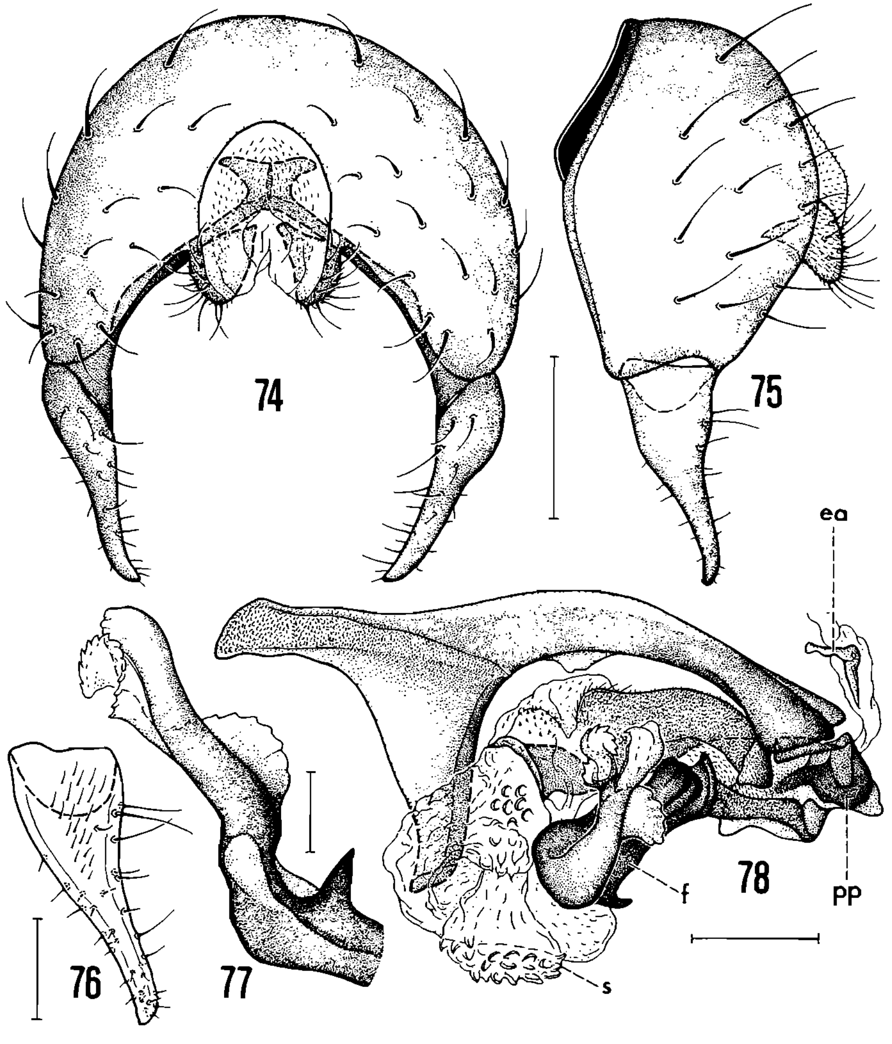
Thorax: Brownish black, narrow; mesonotum with fine granulose microsculpture and greyish brown microtomentum, relatively dull. Pleura also greyish microtomentose, but more shiny. Thoracic chaetotaxy: all setae shortened; hu, pa, sa and particularly single dc very reduced; prs absent; only both npl relatively long; apical sc longest of thoracic setae and small lateral sc about as long as reduced dc; 2 irregular rows of very minute ac microsetae; 2 stpl, but only posterior long, anterior reduced to microseta. Scutellum subtriangular, rather convex.

Legs very slender, yellowish ochreous to pale brown. Fore leg yellow; mid and hind coxae and femora more brownish as are apical tarsal segments of all legs. f_1 without distinctive setosity. t_2 with short ventro-apical seta. f_3 with posteroventral subapical short row of small thickened setulae.

Wing: Very narrow in proximal third, brownish membrane with dark spot along apical half of R_{2+3} and with 3 more or less distinct small pale patches in apical third of wing (Fig. 83). Venation similar to *A. regina*, but R_{2+3} not curved towards C apically, R_{4+5} and M_{1+2} more strongly sinuate, Cs_3 subequal to Cs_4 and tp rather straight. Measurements: length 2,58 mm, width 0,75 mm, $Cs_3 : Cs_4 = 1{,}28$, ta-tp : tp = 2,96. Haltere with ochreous stem and large dirty yellowish white knob.

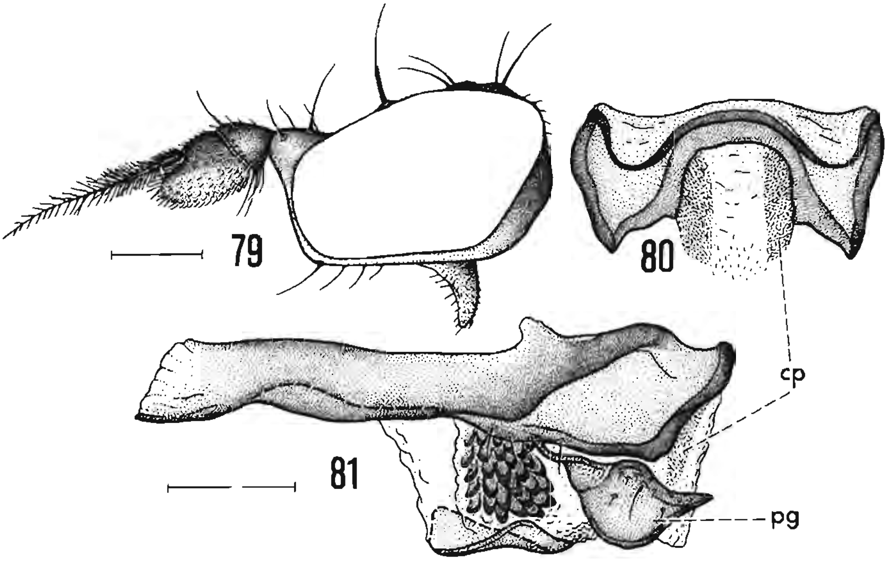
Abdomen: Terga blackish brown and sterna brown. T6 absent. S2–S5 becoming broader posteriorly; S5 distinctly broader than long. S6–S8 as in *A. regina*, heavily sclerotised.

Genitalia: Distinctive. Periandrium (Figs 74–75) strongly convex and very broad,

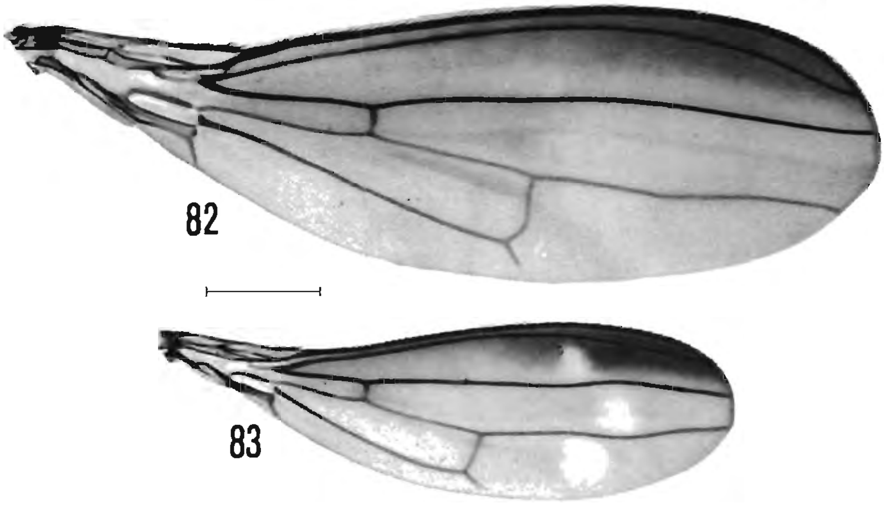


Figs 74–78. *Amnonthomyza deplanata* sp. n., male holotype. 74–75. External genitalia. 74. Caudal view. 75. Lateral view. 76. Gonostylus, lateral view. 77. Apical half of filum, ventral view. 78. Aedeagal complex, lateral view. Scales: Figs 76–77 = 0,05 mm, others = 0,1 mm.

with small anal fissure and short weak setae. Cerci small and close approximated. Intraperiandrial sclerite with small, narrow dorsal part and broad ventral arms (Fig. 74). Gonostylus (Fig. 76) proximally broader, strongly tapered in apical half and with blunt apex; outer side with sparse microtomentum in proximal half, its short setae mainly concentrated at anterior and posterior margins. Hypandrium robust, as in *A. regina*, but caudal process reduced to 2 semimembranous pubescent lobes (Fig. 80) and pregonite longer and bearing some 4 small setulae. Basal membrane armed with group of dense, heavily sclerotised, dark, spine-like tubercles (Fig. 81) and



Figs 79–81. *Amnonthomyza deplanata* sp. n., male holotype. 79. Head, lateral view. 80. Hypandrium, caudal view. 81. Hypandrium and associated structures, lateral view. Scales: Fig. 79 = 0,2 mm, others = 0,1 mm.



Figs 82-83. Wings of *Amnonthomyza* species. 82. *A. regina* sp. n. (female paratype). 83. *A. deplanata* sp. n. (male holotype). Scale = 0,5 mm.

connecting sclerite very broad, plate-shaped. Postgonite dark, strongly sclerotised, unusually stout, rounded ventrally and projecting in acutely pointed apex posteriorly; it bears 1 long seta and several microsetulae. Aedeagal apodeme robust with fulcrum firmly fused to hypandrium; its base asymmetrically forked, similar to *A. regina*. Aedeagus with small phallophore and complex basal part of distiphallus (Fig. 78). Membranous part of saccus of distiphallus voluminous and with pale surface tubercles and thorns. Filum of distiphallus stout and heavily sclerotised, bent to left and armed with strong acute tooth in middle and with flat, weakly dentate subapical and apical lobes (Fig. 77). Ejaculatory apodeme small, with rather long projection (Fig. 78).

Female: Unknown.

Discussion: *A. deplanata* is much smaller and darker than *A. regina*. In addition to the differences enumerated in the discussion under the latter species, *A. deplanata* can also be recognised by its strongly reduced thoracic setae, slender gonostylus, very stout postgonite and conspicuous distiphallus.

Distribution: Madagascar.

ACKNOWLEDGEMENTS

I am very grateful to Mr J. C. Deeming (NMWC), Dr A. Freidberg (TAUI) and Dr B. R. Pitkin (BMNH) for the prolonged loans of African Anthomyzidae under their care. My particular thanks are due to Dr D. Barraclough (NMSA) who generously provided species for this study and added valuable comments, and to Dr J. Starý (Olomouc) for his critical review of the manuscript.

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